SAFETY MAINTENANCE & PRODUCTION

FORMERLY SAFETY ENGINEERING

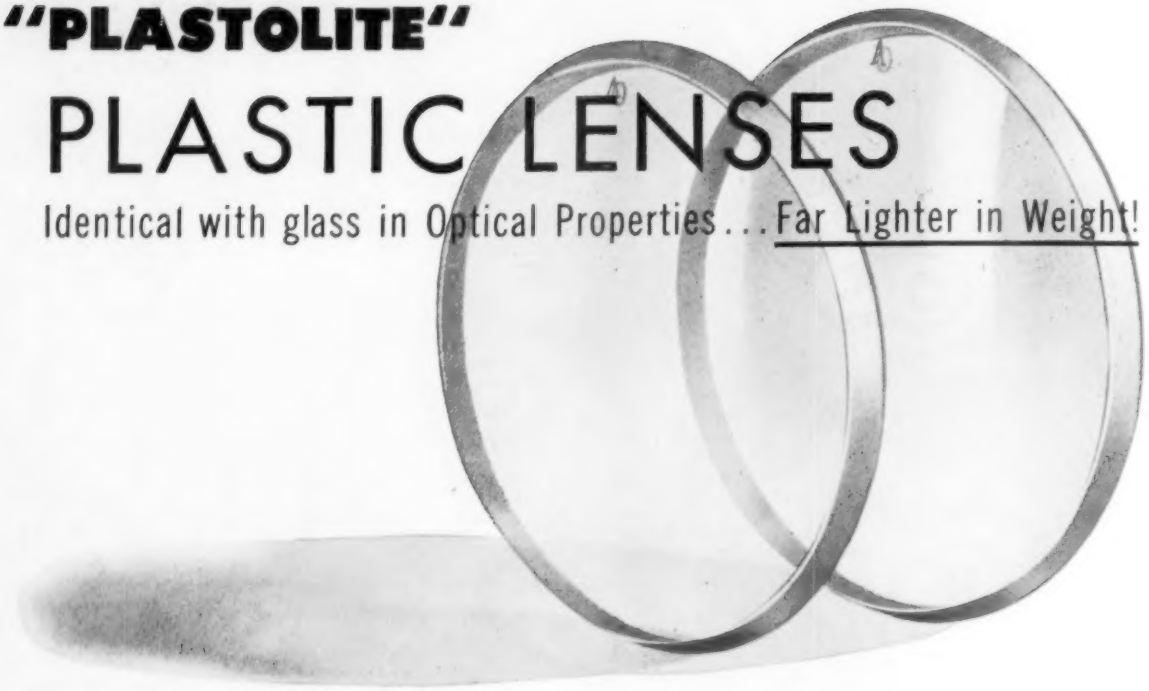
AMERICA'S PIONEER MAGAZINE IN ITS FIELD | EST. 1901 | APRIL, 1932 FIFTY CENTS

AO Announces

"PLASTOLITE"

PLASTIC LENSES

Identical with glass in Optical Properties... Far Lighter in Weight!



HERE IT IS...

the quality eye protection in plastic lenses many safety directors have wanted . . . the answer for workers who need protection but demand lightness heretofore unobtainable . . . the answer for companies who seek the enthusiastic cooperation of all exposed employees in cutting the high costs of eye accidents.

Made in the World's Cleanest Rooms!

Interested in plastic for years, AO has conducted constant research both in the protective properties of this material and in the atmosphere, facilities and controls required to assure maximum quality in the manufacturing process. In a new safety plant section at Brattleboro, Vermont, where Plastolite plastic lenses are made, all foreign matter is excluded which might impair the quality. Not only are the premises dust-free, lint-free and air conditioned—the workers wear special clothing! What's more, AO Plastolite lenses undergo a multitude of tests and inspections. Result: lenses with the optical properties traditional with AO that conform to the highest known standards!

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AVAILABLE ON YOUR FAVORITE AO GOGGLE

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AO's Industrial Vision Program Increases Production, Decreases Accidents. Write today for booklet "Improved Industrial Vision."

American Optical COMPANY
SAFETY PRODUCTS DIVISION

SOUTHBRIDGE, MASSACHUSETTS • BRANCHES IN PRINCIPAL CITIES

Published by Alfred M. Best Company, Inc., Publication Office, Columbia Turnpike, Box 232, Rensselaer, N. Y. Editorial and General Offices, Best Building, 75 Fulton St., New York 38, N. Y. Entered as Second Class Matter at Post Office at Rensselaer, N. Y. Under Act of March 3, 1879. Subscription rates, $4.00 Per Year in the United States; $5.00 in Canada; Foreign, $5.00. Single Copies, 50 cents. Publication Date 1st.

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leather insole stays soft and pliable

These two bottoms, from one pair of shoes, were worn in a foundry for 7 months. The left shoe has a Bol Tan Leather Insole, the right one an ordinary insole.

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Note Bol Tan Leather Insole remains soft and pliable as demonstrated by section cut and lifted for inspection.

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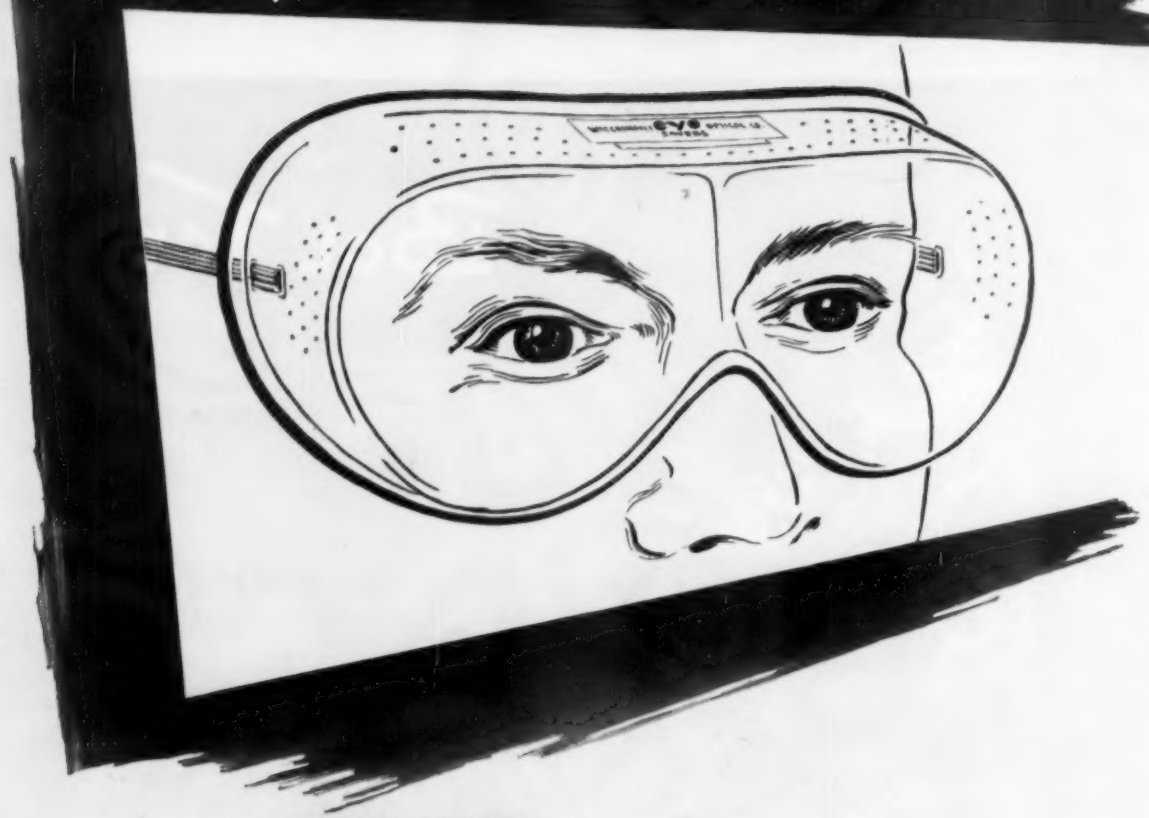

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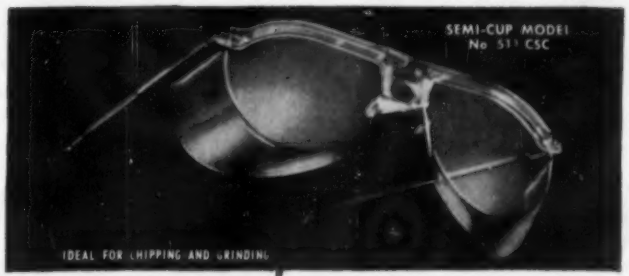

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I. B. M. found that goggles and glasses stay dirty, dangerous and inefficient unless you make it *easy as possible for workmen to keep them crystal-clear.* What's good for I. B. M.—and it must be good to satisfy I. B. M.—is good for you:

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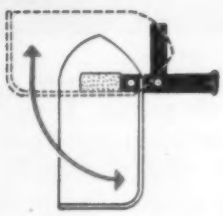

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VANO DESIGN "A" VENTILATOR is used here during repairs to a chemical still. This type ventilator is used to ventilate tanks, tank cars, drums, vats, underground cable manholes, pipe galleries, airplane wing compartments, fuselages and other confined places. Uses 8" diameter flexible canvas tubing ("Ventube").

VANO DESIGN "B" VENTILATOR here discharges welding fumes from double-bottom compartment in naval vessel under construction. Large volume of air handled quickly expels fumes and results in good ventilation. Vano Design "B" can pass through opening only 14" in diameter. Uses 8" diameter flexible canvas tubing ("Ventube").

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BRANCHES

WESTERN
FRANK J. MATRE, Sales Mgr.
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The Magazine of Safety

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EST. 1901

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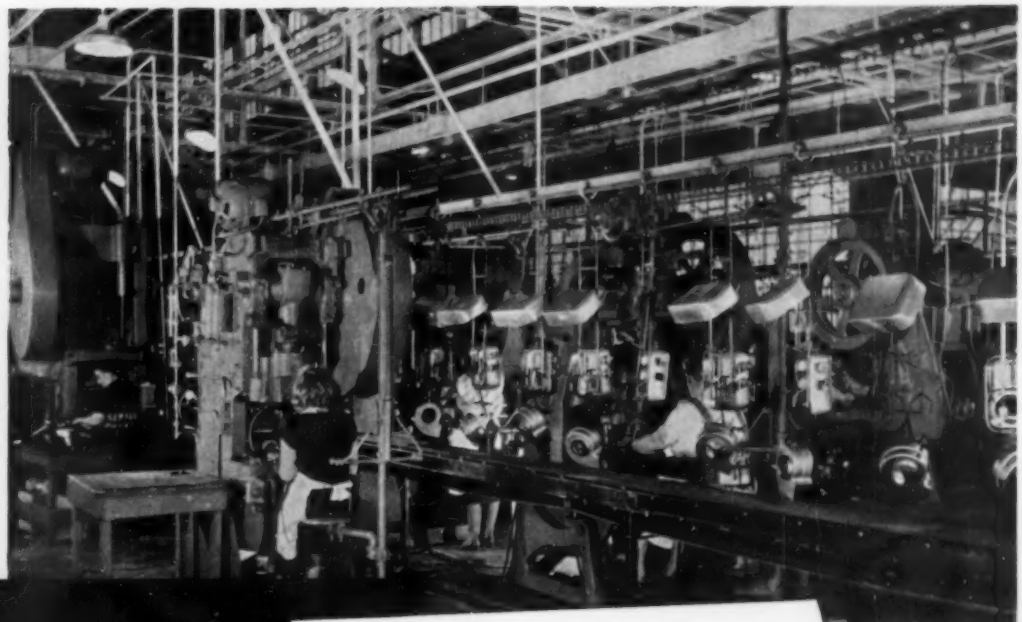
SAFETY MAINTENANCE & PRODUCTION is indexed regularly by Engineering Index, Inc., New York



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Lower manufacturing costs...
No accident time-loss...

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COLOR DYNAMICS

Modern painting system brings benefits to management and workers alike in Automotive Heater Division of Eaton Manufacturing Company

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● **"As a result of repainting** according to COLOR DYNAMICS", reports W. A. Mattie, superintendent of the Heater Division, "we have noticed improvement in operating efficiency, employee morale and general plant cleanliness.

"When our plant was a dull gray, workers seldom bothered to pick up small parts used in assembly operations. They were usually swept up and discarded. Today, employees are so proud of their clean surroundings they pick up these items, effecting worth-while savings for us.

● **"By increasing** our efficiency, COLOR DYNAMICS has helped us to cut manufacturing costs. We think the 20 percent reduction in absenteeism is also directly traceable to the new color plan. Nor have we had a single hour of lost time because of injury since we repainted."

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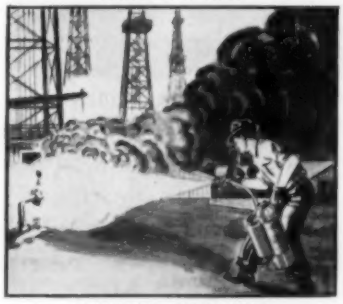
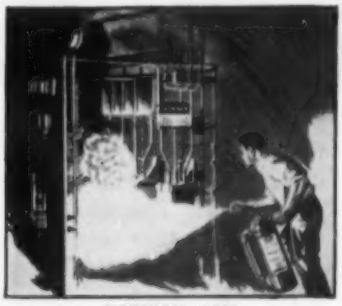


FLAMMABLE LIQUID FIRES

GAS FIRES



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Surface fires in textile lint and combustible dusts spread rapidly. They need quick control. If you have serious lint or dust hazards, talk with your Ansul representative. He may have suggestions to reduce fire damage and lost production time.

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It's Safe to Say

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★ MIND OVER MATTER

IN THIS day of the vogue of professional and amateur psychiatry, it is quite fashionable to attribute every sin of omission and commission to some obscure quirk. Fixations—for or against—are supposed to reflect a childhood condition lost in the past and it is not uncommon to hear high school freshmen prattle about the effect of the subconscious upon their obsessions.

No one can dispute the almost limitless power of fear. We know the damage that can be done to mind and body by neuroses brought on by an anxiety complex.

If Operator Jones is working a power press in an unsafe manner and suffers the loss of his hand, Operator Smith close by is so affected by the gruesome sight that he finds it difficult to begin work under former conditions without the subconscious mind reproducing the grim spectacle. Thus we have a slow-down in production caused by a state of tension induced by fear.

Since increased production at the least possible cost is the order of the day, it follows that accidents producing a rush of fear must be controlled. Obviously then any safety device or procedure calculated to bring about freedom from fear, and thus peace of mind, not only builds employee morale but speeds up the entire production schedule.

A case in point is the installation of proper, scientifically designed and foolproof guards for power presses, wood-working machinery and other hazardous locations. If both Operators Jones and Smith know that guards are in place, strength-sapping tension is eliminated and barring some freak of accident, their subconscious minds are free of fear.

★ ★ ★

On the other side of the picture, management cannot be expected to install guards solely because of benefits to the subconscious mind of the employee, worthy though that motive may be.

It is a foregone conclusion that accidents cost money. It is common knowledge that they slow up production and cause great human suffering. To that end the installation of proper safeguards becomes a managerial duty. Education to assure the continuous use of such safety devices must take the form of a never-ending crusade rather than a spot "campaign" a few times a year. In that way, we can eliminate the basic cause of the accident before the possibility of injury can arise.

In most industrial plants, the subconscious mind is something most workmen never think about. If the average industrial employee is beset by fears of possible impending accident, he certainly manages to bury them very deeply indeed. As a matter of fact many such men are extreme extroverts and are somewhat inclined to bravado, otherwise they would not take extremely hazardous jobs in the first place.

Management too has far too many problems of its own to be impressed with the purely psychological aspects of safety equipment.

In the last analysis, therefore, we know that fear of the known and unknown is a powerful deterrent to skill and ultimate production. Nevertheless the wise safety counselor or production supervisor will use the positive rather than negative approach to safety and emphasize the untold advantages of accident prevention rather than dwell upon the harmful effects of injury.

If management will provide the tools of safety and the educational procedure necessary to assure constant use of those tools, we can leave psychiatry to the professionals and look forward to an automatic reduction in plant accidents.

It follows then that our typical machine operators will be "released" so that production schedules can be maintained.

Fear alone may be a potent weapon but its effect is short-lived. Therefore, safety equipment must be sold to management and staff alike on the basis of financial savings rather than through arguments predicated upon psychiatry.—H.A.

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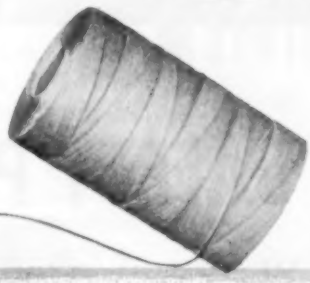

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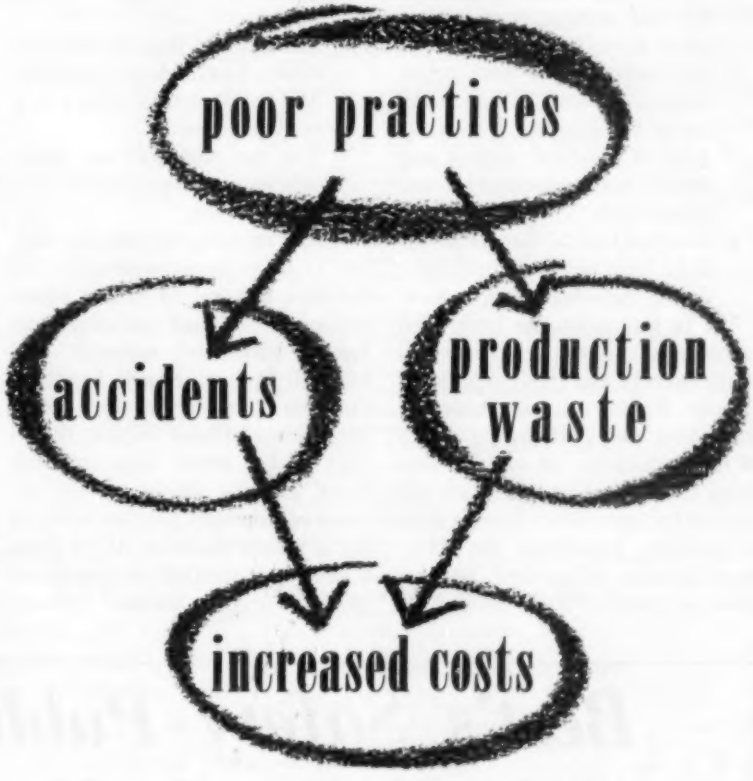
SAFETY MAINTENANCE & PRODUCTION
VOL. 103, No. 4 • APRIL, 1952

ACCIDENTS ARE SYMPTOMS OF INEFFICIENCY

By RALPH J. CROSBY
Assistant Vice-President
Marsh & McLennan, Inc.
New York, N. Y.

How management should look at accident prevention



FROM the standpoint of casualty insurance, the claim cost of accidents will have a decided effect upon the premium paid. Regardless of the rate making basis for the development of the premium, the losses incurred because of accidents will be the most important determining factor over a period in the cost of insurance.

It is obvious, therefore, that if management wishes to reduce the insurance cost, every effort should be made to prevent those occurrences that we call accidents.

As medical charges increase, and the compensation law becomes more liberal both in interpretation and benefits, and the claim consciousness of the public becomes more general, this cost of insurance is bound to continue to rise unless the frequency of accidents is materially reduced.

Important as the insurance cost may be, however, it actually represents but a small part of the total cost to management of these particular accidents.

Accurate figures are not available for this additional cost, because very little has been done as yet, to record losses that are not normally covered by insurance. Even the total amount of compensation and medical aid paid for accidents is not readily available because the experience of self-insurers and non-insurers is not reported to a central source. The National Safety Council gives a figure for 1950 of $1,100,000,000 as the administrative and claim settlement costs of insurance for occupational accidents. The material damage and production loss alone due to these accidents is estimated at an addi-

Accidents Are Symptoms

tional $1,300,000,000. This figure does not take into consideration the other incidental costs that are represented by the factors which have been accepted by the President's Conference on Industrial Safety.

1. Wages paid to the injured person, but not earned.
2. Wages paid to persons other than the injured. These wages are unearned because of stoppage of regular performance due to curiosity, panic, lowered morale, assisting the injured or the process of accident investigation.
3. Wages, paid for the time that would not be required if accidents did not occur—the time spent in selecting and training replacements, the time spent by first aid attendants, the time spent in re-allocating work.
4. Incidental costs of bonuses, or forfeits required because of delay in filling orders.
5. Cost of employer welfare and benefit systems created because of accidents.
6. Overhead costs per hour for light, heat, power, rentals, taxes during the non-productive time.

Up to this point, we have been considering only the losses involved in occurrences that result in personal injuries. If, however, we study the immediate and contributory causes of these accidents, we will find that these same identical causes are the reasons for tremendous inefficiencies in industry. Sometimes the occurrence involves an accident, but, because no personal injury resulted, it is not considered an accident and does not appear in accident records.

Production Waste

Recently, representatives of several of our leading industries submitted their views on the reasons for waste in our national production. Without mentioning accidents specifically, these men have actually put their finger on the outstanding causes of accidents that have built up the loss mentioned a moment ago. Here are some of the reasons they gave for waste in industry.

1. The way employees handle both raw materials and finished product.
2. The way they use or maintain hand tools.
3. The way they operate machines or pieces of equipment.
4. The way they care for machines.
5. The fact that they deviate from standard methods and practices.
6. The fact that they show a lack of "know how".
7. The fact that they are physically or mentally unsuited for a particular job.

It isn't necessary to consider each one of these items separately, but just for a moment let us take a look at the first one—the way employees handle both raw materials and finished product. Rough handling, dropping objects rather than setting them down without impact, throwing articles rather than carrying them, allowing articles to slip because of improper grip are some of the common practices. All of these actions have resulted in serious and costly damage to finished surfaces, and loss of product because of broken containers. The face of finished TV tubes for example are scratched and are worth only the value of the reclaimed metals. Broken cartons in warehouses not only results in loss of the contents but may be the cause later of the collapse of stacks with serious interference with operations. Rough handling in the opening of cartons has reduced many saleable articles to scrap.

If we consider the most common types of accidents in almost any industrial activity, we will find that they involve *improper handling of material*, the very same operation that was outstanding as a cause of industrial waste. Furthermore, the investigation of accidents will show that each of the reasons given for waste are involved in the causes of the majority of accidents.

Inefficiency & Accident Causes the Same

Without taking time to make a point by point comparison, it can be truthfully stated that the causes of accidents that do produce injuries are the same as the causes of many operating inefficiencies. Therefore, if the causes of accidents can be controlled, management will benefit not only from a reduction in the insurance cost but from a reduction in losses that are usually not of an insurable nature but which do add materially to the cost of production.

Some one might say, why don't we put the emphasis on operating efficiency and in so doing eliminate our accidents. Theoretically this is possible because if all industrial operations were (To page 65)

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LOADING & UNLOADING operations are quick and safe. Here, flat-bottomed, over-the-road trucks are loaded at Narragansett Brewery, Cranston, R. I., by powered fork trucks. They quickly load six or more pallets, one fork truck working from each side.

FLOW OF MATERIALS is speeded by lowlift platform truck. Tote boxes of castings are moved between operations in the production area of the Teterboro, New Jersey plant of the Eclipse-Pioneer Division of the Bendix Aviation Corporation.

What Can Mechanized

Industrial power trucks can increase plant capacity without expansion—and also make valuable contributions to safety, maintenance, and production.

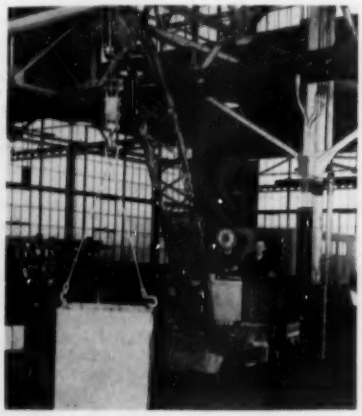
HOW to increase plant capacity without increasing floor area has been a problem frequently faced by manufacturers and warehouse operators. Usually the best solution is expansion vertically, using more of the vacant overhead space under existing ceilings. Since this space is out of practical reach of workmen without powered mechanical aid, solution of the problem is apparently the selection of efficient mechanized handling and accessory equipment to permit stacking materials in convenient accessible units.

For detailed descriptions of mechanized handling equipment, see pages 438–454 of "Best's Safety & Maintenance Directory": 1952–1953 Edition.

On the basis of wide experience, utilization of this space has been made highly efficient by means of industrial truck handling methods. In almost every instance where powered industrial truck methods of handling, and "stackable" unit loads have been adopted, one of the several advantageous results obtained has been an increase in plant capacity.

Industrial truck handling methods increase plant capacity in two ways. One is by eliminating congestion which reduces the efficiency of skilled workmen on plant production lines when work does not ar-

STACKING problems in narrow aisles are solved by wire basket-pallets and fork trucks of 3000 lb. capacity and 10-ft. lift at Beattie Mfg. Company, Little Falls, N. J.



MAINTENANCE gets a lift from industrial trucks. Crane truck, here moving a transformer, is in much demand for various jobs in plant of American Type Founders.

SAFETY is assured at the Whiting Milk Co., Boston, Mass., by using special single-faced pallet with cleats on middle stringer to prevent side-slip of the milk bottle cases.

PRODUCTION is aided in movement of heavy castings between receiving and machining departments by platform truck at the Elizabeth, N. J., plant of American Type Founders. In winter wheels are fitted with special chains for traction on ramp.

FULL STORAGE CAPACITY can be used by Narragansett Brewing Co., Cranston, R. I. This fork truck of nearly three tons capacity raises palletized cases and barrels as high as 18 feet. Total height of six pallet loads is more than 20 feet.

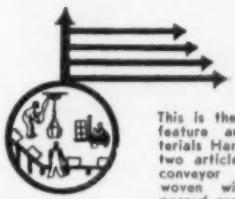
Handling Do?

rive on schedule, or by preventing delays in deliveries of merchandise from storage warehouses. The rate of throughput is thus increased.

The other way is by increasing storage capacity on a given floor area by projecting stored materials upward. Materials may be handled and stored more efficiently by industrial trucks in as small quantities and for as short a time as between operations on a production line; or in as large quantities and for as long a time as may be necessary in a wholesale merchandising company warehouse.

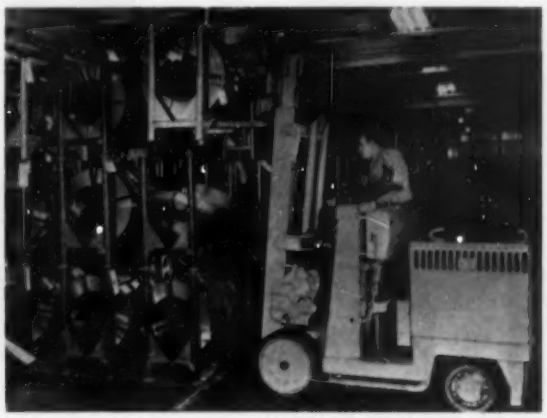
Space saving is important in every industry. In a wide variety of industrial and distribution handling problems, mobile handling equipment has brought about the desired increase in plant capacity and has postponed the need for expanding the floor area for plant production or warehousing operations. This method of space conservation has proved itself so thoroughly in existing warehouses that new storage areas are commonly being designed especially for the fork-truck-pallet

FEATURE



This is the third of three feature articles on Materials Handling. The first two articles, dealing with conveyor crossings and woven wire slings, appeared respectively in the February and March issues of SAFETY MAINTENANCE & PRODUCTION.

SPECIAL HOPPERS are used to transport dry colors at the plant of Interchemical Corporation's Textile Colors Div., Hawthorne, N. J. The colors, used in the manufacture of dyes and other products, are carried in these special company-designed hoppers by means of powered industrial fork trucks.



SPECIAL RACKS, designed by Black & Decker's, Towson, Md., plant have recesses, faced with flanges, in the bottoms of the four legs. These recesses fit over flanged points on the tops of the legs, providing self-adjusting stabilizing legs, assuring rigidity when racks are tiered three or four high in storage.

NEW TYPE of fork truck is specifically designed for operation in and around highway motor trucks and freight cars. The trucks combine small dimensions and high maneuverability for operation in close quarters.

system with high-tiered unit loads. Modern design takes into account mainly such factors as floor capacity, practicable tiering heights, and storage area layout, but also methods of forming unit loads. Suitable unit loads of a standard uniform size and stability are necessary in order to realize fully the desired benefits. In some instances new and efficient warehouses replace inefficient structures.

Trucks Aid Safety and Maintenance

In addition to making possible the more efficient utilization of waste space, mechanized handling and particularly the industrial truck has had a profound effect on other aspects of industrial production. It has made the manual lifting and handling of materials unnecessary and with the disappearance of handling by hand has gone the accidents and delays associated with manual methods. The whole flow of goods—from the receipt of raw materials through various stages of processing to storage and shipment—has been speeded up and made more dependable. If shortages develop anywhere along the production line, mechanized handling can get additional supplies to the critical point in a short time.

Versatile as industrial trucks are in meeting emergency situations, there has also been in recent years a tremendous expansion in the types of trucks. Machines are now available that will move a great range of loads vertically as well as horizontally. Among the more recent truck innovations, stubby mechanized lifters have been devised for the stacking of goods in narrow aisles. Small units have been designed for the specific problem of working materials into and out of highway trucks. Special attachments now permit the easy and efficient handling of special shapes, such as bales, rolls and cylinders. In adapting the use of trucks to their own individual problems, various concerns have invented new kinds of pallets and stacking devices to make the movement and storage of goods convenient and safe.

Not to be overlooked, either, is the assistance mechanized equipment has given to maintenance departments. Machines can be dismantled and parts moved by powered cranes. With the addition of a railed platform on crane booms, the crane-trucks are being used for replacing lights in high-ceiling areas and for washing of windows.

Costs Reduced

Modern handling and storage methods reduce all three of the major cost factors: investment in building and fixtures, handling costs, and accounting costs. Investment is reduced because a maximum of the available storage space can be utilized. This can be done with a minimum space required for accessibility to stored material. Handling costs are lowered because of the increased speed of moving materials into and out of storage areas, the high load capacity of powered trucks, and the increased capacity per man. One of the factors in low accounting costs is the possibility of taking inventory of stock in larger units. In merchandise warehouses less clerical work is also necessary in filling and placing orders, and there are savings in planning and storage control.

All of these factors mean that the more intensively the capacity of a warehouse is used, the lower the unit costs for fixed storage expense. The smaller the investment in fixtures, the greater the flexibility in a storage area and the smaller the cost of changes needed to maintain maximum capacity.

In any storage area a first consideration in the layout of space must be the activity of the goods. Articles that move daily or that are stored only a short time should obviously be stored nearer the exits to points of use or distribution than articles that remain longer in storage.

The quantity of any commodity naturally determines the space

(Continued on page 62)

AUXILIARY FIRE TRUCK can be dispatched quickly to any part of the Ford Motor Company's Dearborn assembly plant. Here new cars are being filled with gasoline so that they can be driven away at the end of the final assembly line. A Ford fireman removes from the auxiliary fire truck an exchange carbon dioxide portable extinguisher which he will hang in a convenient location in this hazardous area. The truck's small size is important as it can enter doors and areas denied to full-sized trucks. It carries an assortment of extinguishers for fire hazards.

CORK OF THE WALK

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of course

Soles and Heels

Fourth of Five

CORK COMPOSITION

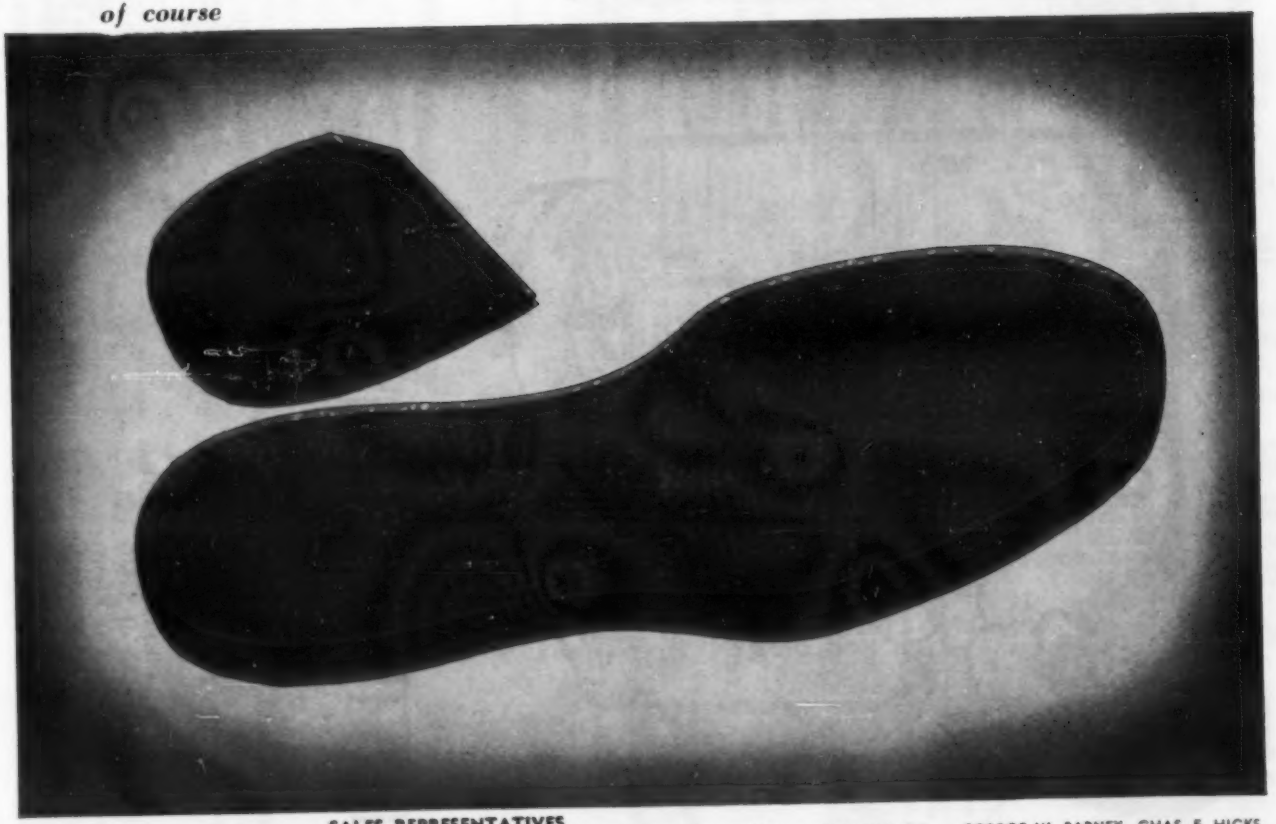
Colors—

Red, Brown, Black

21–18–15–12–9 Iron

Light Weight

Long Wearing



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For detailed descriptions of appropriate protective equipment, see pages 87–122 of "Best's Safety & Maintenance Directory": 1952–1953 Edition.

PRACTICAL EYE PROTECTION

How to set up a vision program
How to emphasize eye safety
How to enforce the wearing of protective equipment

By RUSSELL N. CROSBY
Supervisor of Safety and Claims
Berwick, Pa., Plant
American Car and Foundry Company

IN ORDER that any successful eye protection program can function (and in fact any safety program), it is necessary to have the full cooperation of management and employees concerning the importance of protecting the workers against the hazards that may occur in any industrial establishment. Today, more than ever, management is spending an unlimited amount of time and money in educating their employees in the process of safety, and particularly eye protection.

The safety of one's vision is one of the most important problems confronting the safety engineer today. In our complex lives and the ever-increasing demands placed upon us, we should all be conscious of the fact that protection of our eyes is of the utmost importance.

Consider the new employee, who may be an individual just out of school or may be a worker seasoned in industrial activity. Regardless of the status of the individual, he is usually subjected to a physical examination before he is allowed to work in any industry. This physical examination is becoming more and more detailed as the years go on and at the present time the examination of vision is, and should be, considered in equal importance with the examination of the heart, lungs or any other member of the body.

After a complete examination of a prospective employee's vision and the facts noted, he should be given employment where his visual capacities will correspond with the work required. This type of examination does not only give a guide for selection of employees but also constitutes a permanent record of the employee's vision.

Educating the Employee

In practically all industries that present any eye hazards, special plano safety goggles are furnished to the employees in order to protect their eyes against any hazards that they encounter. Too many times these safety goggles are given to the employee with the remark, "Wear these goggles at all times." The individual takes the goggles with blank wonderment and goes off to start the work that has been assigned to him. The individual does not know where to go for repairs or adjustment of any kind; he is allowed to live and learn the hard way. Too many times these individuals return for adjust-

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FEATURE

This is the second of a series of three feature articles on Eye Protection. The next article of the series will appear in the May issue of SAFETY MAINTENANCE & PRODUCTION.

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ment by way of the plant hospital. Another eye casualty that can be registered because of lack of information.

When the individual receives the safety goggles he should be given a complete adjustment not only by someone who understands the method of adjustment, but also by someone who understands the type work that will be required of him. Here is a good time to forcibly instruct the employee as to the importance of wearing proper eye protection in his daily work.

After the thorough eye examination and complete adjustment of the safety goggles or other eye protection, the individual is ready to enter his place of employment—which will be his work home for the remainder of his occupational period with the company. At this time he comes in contact with the foreman of the department who will be the guide of all his industrial endeavor. The foreman must realize that he not only has the responsibility to see that this man produces, but also has the responsibility of the safety and welfare of his well being. At this time, the foreman can either stress the importance of production alone or he can, and should, take advantage of the opportunity to use the time with the new employee to emphasize the importance of safety within the department. If the foreman is well informed concerning the safety conditions of the department and the plant, he will be in a position to give the new employee an excellent safety foundation with which to work.

If, on the other hand, the foreman is poorly informed or takes the attitude that production is his only responsibility or concern, the employee may take the attitude that safety is secondary and of little consequence within the department. Should this be the case, the safety inspector will have another member added to his long list of potential safety violators. Not only will the new employee be considered as such but also the foreman who had neglected to give him the proper safety procedure of his department. It is a well known fact that where the responsibility for safety has been given to the foreman, the accidents have been less numerous.

Repair Stations

Replacement and repair stations should be set up at a central place, whereby employees can have their safety goggles and other eye protective equipment repaired, adjusted, or replaced with a minimum amount of lost time from their work. Stations of this kind are important because it will enable the employee to have proper eye protection at all times. If it is impossible to set up a repair and replacement center, the foreman should have a supply of goggles and other eye protective equipment to give his employees who are in need of them. By such a method, there will be no excuse for employees to work without proper eye protection. Any foreman who desires safety in his department can have it, and by the same token, any individual who wants to work safely can have the same results. The whole process of eye protection depends upon educating the individual employees of the existing hazards that abound within their respective fields of employment.

Corrective Safety Goggles

Of the large number of employees in any establishment, there will be a goodly number of men and women who will need prescription type safety goggles. These individuals are the ones who will need special care in examination and adjustment. At the time of examination and before the prescription safety goggles are received, there will be a period when the individual will need some form of eye protection, not only for the dress glasses worn, but also protection for the eye itself. During this lapse of time, the employee should be given some kind of protective covering which will protect the eyes. This protection will suffice until the prescription goggles are received. Corrective safety goggles should only be secured upon the presentation of a prescription from a doctor. Upon receipt of the prescription goggles, the employee should be notified that he will be able to secure them by going to the doctor where proper adjustment and final fitting can be given.

Some type of follow-through program is necessary to carry out a well rounded eye protection program. This program should *(To page 40)*

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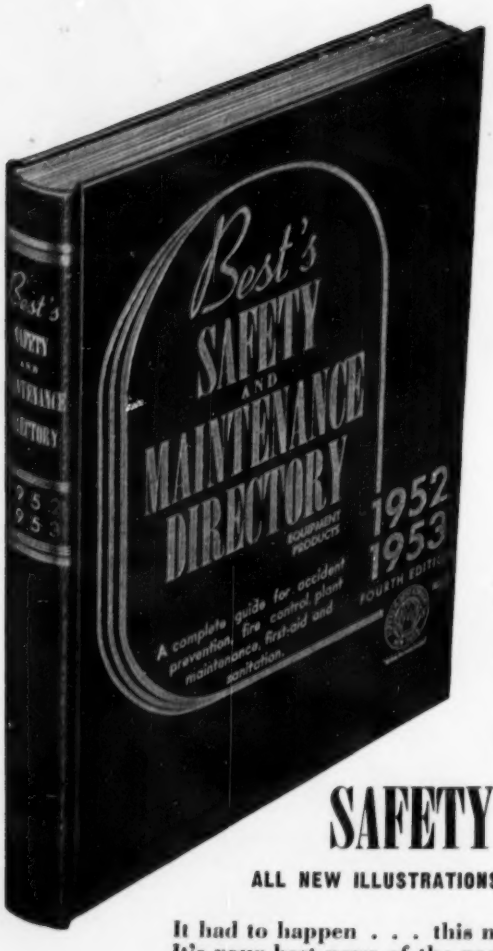

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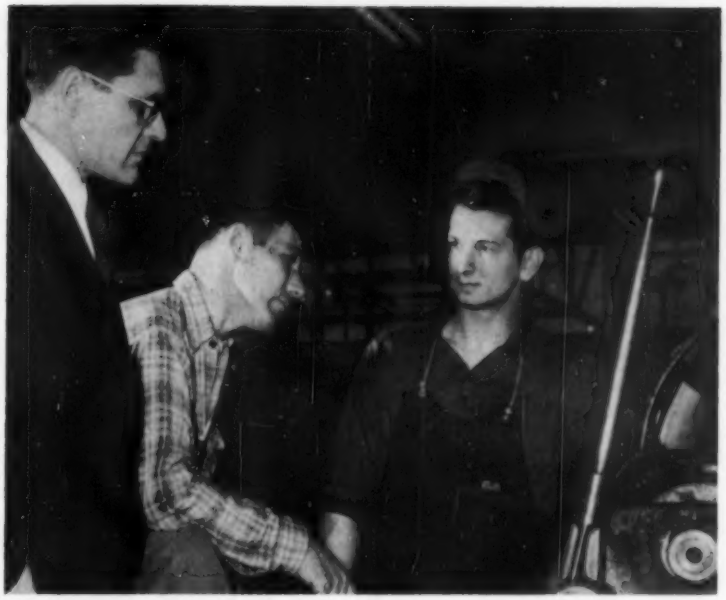


Unusual phase of Ansul's safety program is cooperation on new safety devices between the safety director, foreman and plant employee. Here, Ellsworth Cudnohusky, right, tube cutter operator, points out safety shortcomings of his machine to foreman Rudy Cardin, center, and Safety Director Joe Banach. Majority of Ansul's new safety equipment is worked out by operator, foreman and safety head. Such participation wins safety support among the employees and curbs accidents.

It isn't the size of a company that counts but the ingenuity of its personnel in adapting proven safety measures and devising new ones.

A safety shoe that saved his foot from a crippling injury is shown by John Abraham to Joe Banach, Ansul Safety Director. Abraham dropped an 80-pound fire extinguisher on his foot, gets a free pair of shoes from company for damaged pair.

MENTION the words "safety program" to almost any plant manager, and you will probably hear an oration about how many safety placards are posted around the plant and how much better the housekeeping has become.

Both of these items are important, of course, but at Marinette, Wis., where Ansul Chemical Company employs approximately 400 persons to produce dry chemical fire extinguishers and industrial and refrigerant chemicals, plant safety means much more. Here the safety program goes far beyond what one would normally expect from a company of that size.

Under Joe Banach, a former FBI man, Ansul has in effect a 14-point safety program aimed at driving home safety consciousness at every point. As a result, the company has compiled a noteworthy safety record. For seven of the past ten years, it has paid each of its wage-earning employees a bonus of a day's pay for getting the company through the calendar year without a lost-time accident. It has saved enough on its insurance premiums the last seven years to pay the safety director's full salary.

Use of the bonus plan has been found to stiffen safety attitudes and to make every man conscious of the safety practices of his fellow employees. In effect, every employee becomes a safety director and spots and corrects dangerous situations.

But the bonus plan is only one of

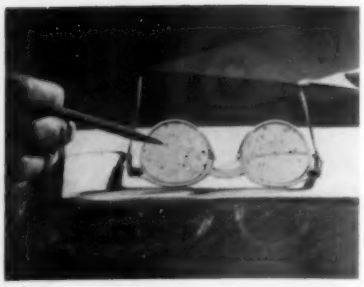
many devices which Safety Director Banach uses to maintain safety awareness. At the end of the year, Banach sends every employee a note asking him to include, along with his other New Year's resolutions, a pledge to "think safe, work safe, and be safe in 1952." The note calls attention to the safety bonus pay and reminds him that, although the victim of a lost-time accident suffers most, everyone else is affected, too.

Still another activity is for Banach to distribute National Safety Council automatic pencils to each of the plant foremen. The green cross of the NSC stands out above the foreman's shirt pocket and reminds workers of safety. Thus the foreman becomes identified with safety and is an "emissary" of it.

The Results Count

Ansul's safety program has always been based on the human touch. Very little canned material is used. The safety director works with foremen to develop safety-consciousness. The belief is that if the foremen are safety-minded, they will impress it on their men. Dignity of the individual is upheld, too. For example, the safety director spots an unsafe practice, discusses it casually with the foreman, asks him for some ideas on improving it. Generally, the foreman comes up with a solution although, nine times out of ten, the idea has been thought of by the safety director. The foreman receives the credit for the idea and feels good. The safety director is pleased that the unsafe operation is now safe and doesn't care if another person gets the credit. This requires an unusual man—one who's more interested in results than taking the glory. In Banach, Ansul has such a man. If the foreman is also unusual —and Ansul have several who are— he'll try the same technique on his own men. This develops strong safety cooperation all the way down the line.

Management has given Ansul's Safety Department virtually a carte blanche. Unlike every other department, the Safety Department has no budget, but can get anything it needs! This requires top-level understanding of the importance of safety and top-level identification with the program.



Molten metal seriously pitted these safety glasses worn by an Ansul worker. Company is glad to replace them free of charge, and then puts them on exhibit for all the employees to see and profit from.

Sickness Insurance

The company provides an off-plant sickness and accident insurance policy which has helped the safety record. The theory behind the policy is that, if a man is sick and faces loss of several days' pay, he may force himself to come to work. Obviously, he's not in condition to do so and is prone to be injured more than a healthy worker. If, however, this same man is assured a good share of his regular income even though sick or injured away from work, he'll stay home until he's well. Consequently, he becomes a better safety risk.

Here are other points in the safety program:

Safety goggle program. The company pays full cost of clear lens safety glasses, $3.80 toward any corrective lens safety glasses. The charge is then nominal for all employees. If safety glasses are damaged by averting an accident, they're replaced free of charge. This applies to safety shoes also.

Safety shoe program. The company pays half, employee the other half. This is on wholesale cost, since Ansul sells several hundred pairs a year and carries a 400-pair inventory. The employee gets good shoes at a fraction of the retail cost, also a free pair if they save an accident.

First Aid program. One-fourth of all Ansul employees are either fully or partially trained in first aid. Partially trained employees *(To page 49)*

The company physician, R. A. Higley, tends minor injury of Harold Menor. The first aid facilities of the modern dispensary promote health protection for all.

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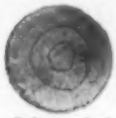

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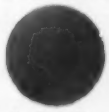

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By **FRANK W. FARNSWORTH**
Southern California Gas Company
Los Angeles, California

WATCH THAT LIVE WIRE!

Electrical hazards may be encountered anywhere, not only on the power line, but in the factory, the home, and the office. Here are some suggestions for the safe use and maintenance of electrical equipment.

PERHAPS the greatest danger in electrical work is the speed at which an electric current travels. Electric shocks due to the use of electric equipment occur very suddenly, without forewarning, and are usually serious. In contrast to this, mechanical and construction equipment sometimes gives warning of impending failure. Examples of this are the plastic distortion of overloaded structural steel beams, and the excessive vibration of faulty articulated machinery; but an electric shock never warns you that it is coming.

The second greatest danger is that the average individual thinks of the hazards of electric shock in terms of high voltage and does not always realize that it is primarily the current that kills and not the voltage. Consequently, persons who work around low voltage equipment do not always have the same healthy respect for it that they do for high voltage. They do not realize that the governing factor is the relationship between the voltage with which one is in contact and the resistance of the circuit of which one's body is a part. If this resistance is low, the voltage may be low and still be sufficient to kill. Deaths from the ordinary 120 volt lighting circuit are frequent.

Because low voltage equipment is the type most frequently encountered, low voltage safety will be discussed first and in more detail.

Low Voltage Electrical Hazards

For the purposes of Article 4 in the "Electrical Safety Orders," Industrial Accident Commission, State of California, 750 volts or less is considered low voltage.

The causes of injuries from low voltage * are, basically: 1. Touching "live parts," 2. Short circuit, 3. Accidental ground, 4. Overload, 5. Breaking connections.

All safety devices and procedures are primarily designed to prevent any or all of these things from happening unexpectedly.

Perhaps the best way to present this material would be to list each of the basic causes followed by examples of the hazards associated with that cause.

Touching Live Parts

Of course no sane person would deliberately touch a live conductor, but many will touch a supposedly dead conductor without testing first to see that it is dead. In many instances, fused switches, or obsolete circuit breakers which were installed

* L. A. Dept. of Water & Power—Electrical Testers Manual.

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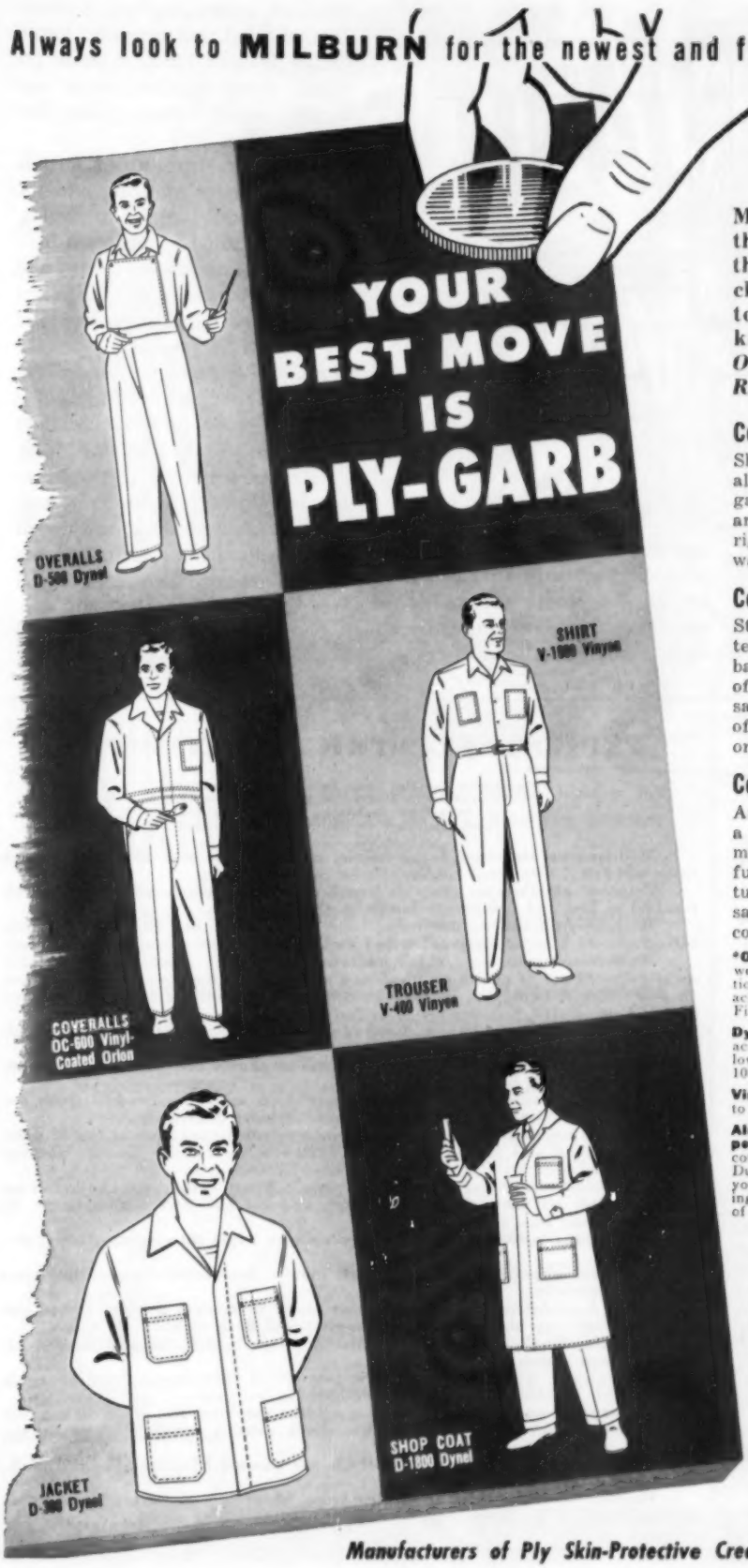

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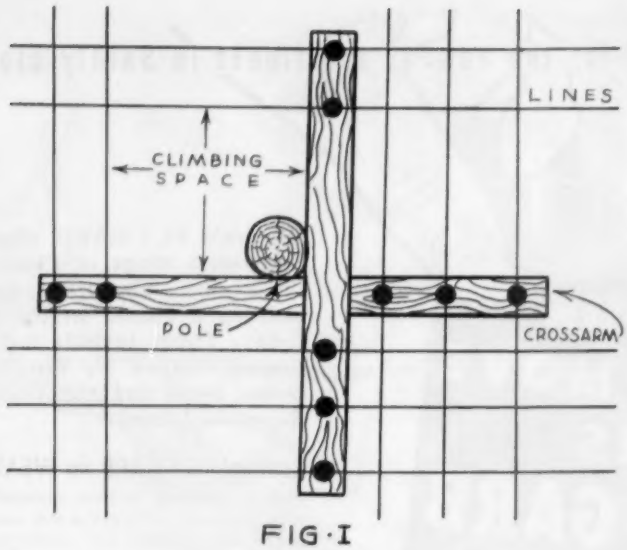


FIG·I

when the factory was built are still in service. Pulling a switch should disconnect the line you intend to work on, but it may not. A voltage tester applied across the line and ground will tell you for certain.

Low voltage power distribution lines may be set too low or too close to ladders, high platforms, etc. Many people climbing about on roofs will grab hold of a wire to push it down so they can step over it. They do this with the mistaken impression that the covering on these wires is electric insulation, actually it is merely a weather protective covering to prevent corrosion. Notice that the lines leading into many houses will have the rotted insulation hanging from the wire in long strips but no one does anything about it. Why? Because it is high enough to be out of peoples' way and the corrosion isn't sufficient yet to warrant replacement.

Cracked and defective plug-ins for power equipment expose the operator to shock—purely a question of maintenance.

Equipment not grounded. For example, an old motor with faulty insulation might energize the entire frame of the machine that it drives. If the frame of the machine is not grounded intentionally, the operator may ground it unintentionally with his body becoming the ground circuit.

Power companies are generally very careful to space and hang their power lines properly, but electricians working for private companies are sometimes not so careful, and lines strung about the plant are sometimes set to swinging by a combination of wind and magnetic forces. When lines of different phase potential swing together, injury and damage result through falling live wires and fire.

Single lines strung about are subject not only to swinging into stationary objects, but also to sagging. Sagging is caused by expansion from temperature rise due to current and atmospheric conditions. Sufficient lateral and vertical clearance and tension will correct this.

Another short circuit item of particular interest to fire companies is the use of proper protection for lines strung about inaccessible places. Unarmored wire is subject to gnawing by rodents. Many fires have been started by rats chewing through soft insulation and shorting out the wires contained therein. Electrical fires are usually persistent and dangerous. Water should not be used

(Continued on page 46)

TYPICAL ELECTRICAL ACCIDENTS

Note: These injuries were taken from a pamphlet published by the California State Department of Industrial Relations entitled "Electrical Work Injuries in California Industries."

Maintenance Man—adjusting motor, grounded out with 220 volts. Broke loose and fell 6 feet from ladder. Shock injured fingers.

Painter—painting too close to transformer, received electric shock, which resulted in 2nd and 3rd degree burns on the wrist.

Machine Adjuster—installing electric sewing machine. Defective 220-volt wiring caused him to receive 1st and 2nd degree burns when plug exploded.

Welder—plugging in cable connector for welder power supply. Cable sheath slipped out of clamp on plug, and wires twisted together and shorted out on 480 volts. A heavy arc ignited clothing causing multiple 1st, 2nd, and 3rd degree burns.

Carpenter—using skill saw. Cord came loose in handle of saw and shorted, burning his forearm and wrist.

Brick Layer—plugging in electric wire to generator. Short started generator, crushing his finger.

Television Service Man—installing television antenna. Lead-in from antenna contacted overhead high-voltage wires. Result: electrocution.

Lineman—reconnecting taps on secondary distribution lines at top of pole. His foot slipped and connected with a 7200-volt conductor. Result: another electrocution.

Electrician—repairing burned out fuse. When switch was pulled, fuse box exploded, arc blew open metal door, and 1st and 2nd degree burns on knees, legs, and face resulted.

Watchman—contacted energized switch case while turning on flood light. Electrocuted.

Foreman—repairing 440-volt electric motor. Accidentally crossed live wires and died instantly.

Plant Superintendent—checking for short in control panel. A 440-volt magnetic contactor blew out causing an electrical flash to burn his eyes.

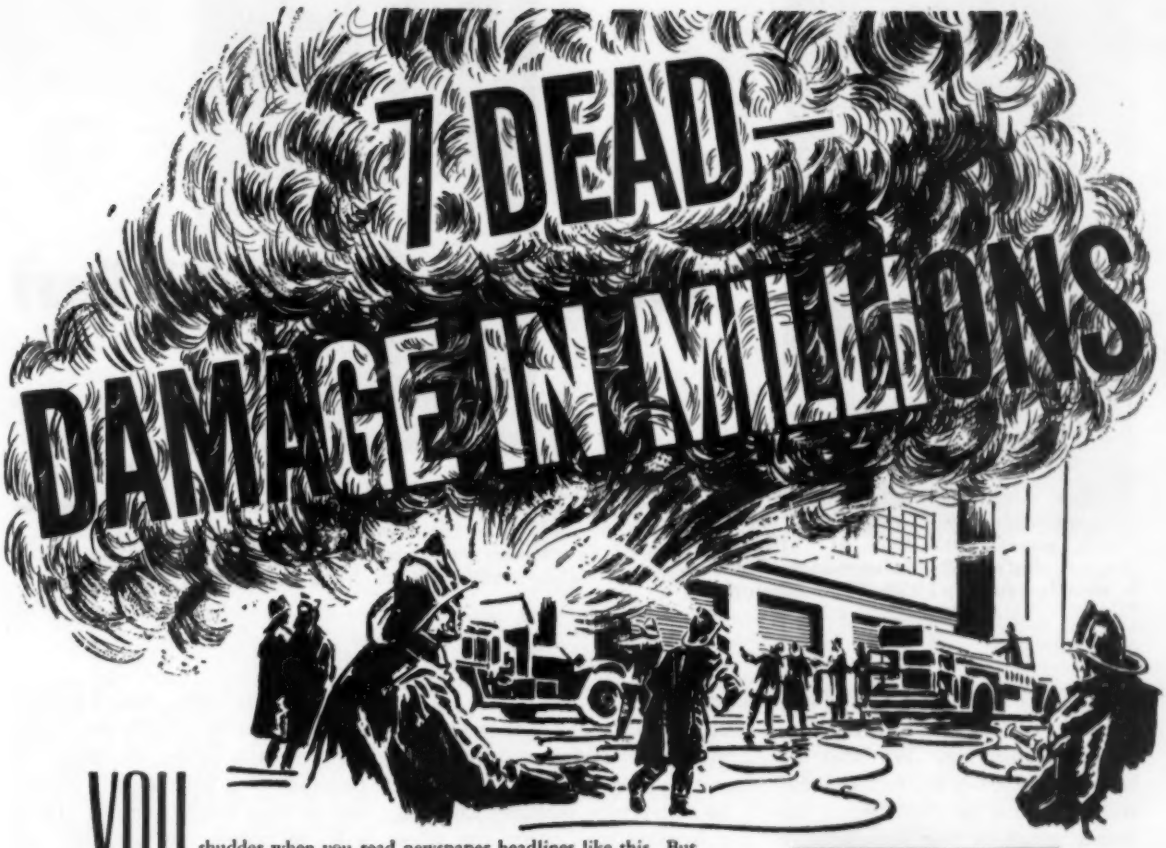
Fireman—working on water pump. A relay shorted out and burned his wrist under a metal watch band.

Serviceman—working on electric stove. A thermostat control cable shorted with a resultant 220-volt flash burn in his eyes.

Millwright—one hand resting on a welding machine, the other on a building column. The result was an electric shock causing multiple burns on the hand.

Canner—touched large cooker which was shorted. Shocked, he fell backwards and injured his back.

Finisher—working with an electric iron. Short in iron caused 1st and 2nd degree burns on his hand, and placed him in a state of shock.



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Rockefeller Center's Best

By CHARLES S. STEEN
Superintendent of Special Services
Rockefeller Center, Inc.,
New York City

For detailed descriptions of maintenance equipment, see pages 303–367 of "Best's Safety & Maintenance Directory": 1952–1953 Edition.

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In the fifteen buildings comprising Rockefeller Center, the latest statistics list some 32,000 persons who consider Rockefeller Center their business home. Added to these are an estimated 128,000 others who daily visit the Center on business or pleasure. We have a daily population of some 160,000 persons. That's a lot of people. In fact, there are only 55 cities in the entire United States which boast a larger population.

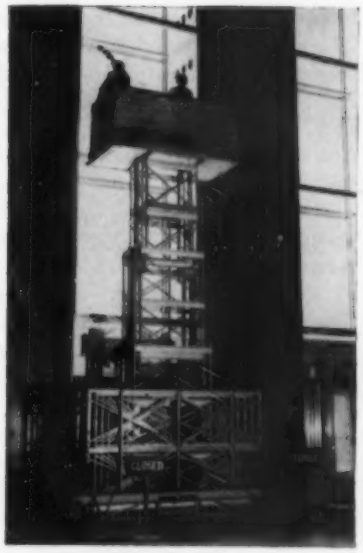
A portion of the mechanized equipment used by the staff of employees in Rockefeller Center's Cleaning Division is stored in this sub-basement equipment room. These machines, including buffing and polishing machines, left, giant vacuum cleaners at the right, and scrubbers in the rear, are checked and repaired each day in order to be ready for the army of maintenance employees.

Since safety and good housekeeping go hand in hand, we must keep our house in good order. We have a large cleaning force using the most modern equipment and materials and are continuously testing new methods and products. We have approximately five and one half million square feet of space which must receive varying degrees of cleaning each day. To handle this work there is a staff of 700 cleaners and porters who, in the course of a month's work, use 2800 pounds of soap, 500 gallons of wax, 110 gallons of brass polish and more than a ton of rags. Each phase of the operation, no matter how minor, involves a certain degree of hazard, and we make every effort to see that each employee is instructed to do his job in a safe and efficient manner.

Ours is a unique problem because of the diversity of flooring materials used. We have the combined maintenance problems of industrial,

Foot Is Always Forward

Five and a half million square feet of floor space and just about every type of flooring there is—that is the problem faced by the maintenance department at Rockefeller Center. By using the most modern methods and equipment, however, the Center always has that scrubbed-behind-the-ears look.



The problem of cleaning at otherwise inaccessible heights is solved by the use of portable elevated working platforms. This telescopic platform, powered by electricity, can be elevated to a height of 49 feet.

commercial and public buildings. Our service basements and trucking areas are of concrete. In corridors and office space there is either cork, linoleum, mastic tile or rubber tile. In our gymnasium we have maple flooring. The toilets and showers have porcelain tile. In the elevators we use rubber tile. The main floor areas and elevator banks throughout are terrazzo and Travertine. Our public stairways are of terrazzo with non-slip carborundum treads. In addition there is considerable carpeting.

Cleaning Equipment

The cement floors in the service areas are sprinkled with damp sawdust and swept twice each day, and the trucking space is scrubbed twice a year. The scrubbing is done with an electrically driven scrubbing machine. The floor is wetted down and sprinkled with soap powder. The floor is then scrubbed and the excess water removed by a suction feature of the machine. Following the machine are two men who mop the floor with 32-ounce mops. This machine crew, comprised of three men, clean 2500 square feet per hour.

We have over two million square feet of cork, linoleum and rubber flooring. These floors are treated with wax every month. Two coats are usually sufficient, but three coats are needed where floors have heavy traffic. Twenty-ounce mops are used to apply this wax. We find it best to buff the floors between applications of each coat. In some cases, to get a better gloss or finish we use a sealer. Care should be taken when using a sealer because of its flammable qualities. To eliminate this hazard we always apply two coats of wax over a sealer. When a sealer is used, your maintenance is increased. A crew of three men can wax about 300 square feet per hour. After the floor is waxed, it is dry-mopped each night with a 42-inch dry mop and buffed on alternate nights with a buffing machine equipped with an 18-inch brush. Once each month a new coat of wax is applied and twice a year the floors are stripped of all old wax using a floor cleaner, after which the floor is mopped thoroughly with clear, cold water. When the floor is dry, the wax is applied as outlined above.

We find that mastic tile makes a very durable and practical floor which is easy to maintain. These floors are dry-mopped and buffed on alternate nights. Once each month the floors are stripped with a floor cleaner, mopped thoroughly with clear water, and two coats of a non-slip dressing are applied. After this the surface is buffed with a waxing machine. A crew of three men can treat about 300 square feet per hour.

We have approximately 10,000 square feet of maple flooring in our gymnasium. The floor is dry-mopped each night, and twice each year the floor is refinished. In this operation the floor is treated with an emulsifier solution and detergent, and scrubbed with a machine equipped with an 18-inch palmetto brush. When the floor has been cleaned, it is mopped with a solution of one part of vinegar to seven parts of cold water. The floor is then

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FEATURE

This is the first of three feature articles concerned with Plant Maintenance. The next two articles of the series will be published in the May & June issues of SAFETY MAINTENANCE & PRODUCTION.

mopped with clear water. After a 24-hour drying period, a wood-floor sealer is applied with the grain of the floor. When the surface has dried for 24 hours, the floor is treated with a mop which has been sprayed with cedar oil.

Porcelain tile in our toilets and showers are mopped nightly with a solution composed of three ounces of soap powder, one ounce of tar disinfectant to one gallon of water. We clean about 400 square feet per man each hour.

Our terrazzo is scrubbed nightly with a scrubber machine. A solution of one pint of a commercial cleaner to fifteen gallons of warm water is used. These floors are stripped twice a year at which time a solution of one ounce of trisodium phosphate to one gallon of hot water is used. We then wash the floor with clean warm water. A three man crew cleans about 10,000 square feet per hour.

Travertine is Italian marble which is mopped nightly with clear warm water. Each three months these floors are stripped with a detergent solution and scrubbed with our floor machines. After this process the surface is mopped with clear warm water. A two man crew cleans about 7,500 square feet per hour.

We have 1½ million square feet of carpet to be cleaned nightly, five days per week. We use a vacuum machine for this work, except in special cases when a hand sweeper is used. We clean about 3,000 square feet per hour per man. However, this varies somewhat due to conditions peculiar to a particular assignment.

Sidewalk Maintenance

Sidewalks are hosed down, weather permitting, each night after midnight. During the winter weather, the walks are swept and picked up and only hosed when weather permits. Our small crew of men who spend their time removing chewing gum from our corridors have been the topic of much comment, and their jobs make any list of "unusual occupations." Gum is now removed from the sidewalks with a steam cleaner. In addition to removing gum the operation cleans the entire sidewalk. The machine with a crew of two men can clean about 500 square feet per hour.

In mentioning these operations I have tried to point out the standards established as the result of study and experience. We make every effort to keep our floors and walkways clean and attractive, without sacrificing safety, and we feel that our record on this score has been a good one.

Window Cleaning

In the Center there are more than 16,000 windows to be cleaned at least once each month. Obviously this is one of our hazardous operations. We have strict rules covering these workmen and failure to comply with them may result in instant dismissal. An experienced window cleaner in our type of building should clean 75 windows per day. In order to accentuate safety we set our daily quota at 60 per man. Daily inspections are made by the foreman of the window cleaner's equipment, his shoes, clothing, safety belt, etc. Window ventilators are removed when a window is cleaned. A man never steps out on the sill until his safety belt is secured.

A staff of fifteen full-time carpenters use this underground workshop which is complete with the latest tools and equipment essential for a wide variety of carpentry.

The same care is used when the job is finished. His essential equipment is attached by a strap to his clothing, and no loose tools are carried in his pockets. No outside work is permitted in cold or icy weather. Instead, the men are transferred to inside work. Two men are assigned to all ladder work over 18 feet, and all ladders are equipped with rubber safety shoes. Ladders are inspected regularly. A window cleaner not feeling well is not permitted on outside work. Each new employee is given a set of safety rules. With strict enforcement of these rules, we feel our good record is the result of more than just good luck.

Elevator & Escalator Maintenance

With such a concentration of population as is found in the Center, speed, comfort and convenience are vital factors. We have 215 elevators which handle 250,000 passenger riders daily, and which travel more than a million miles a year. Our 15 escalators are capable of carrying 105,000 passengers per hour, and we have over 50 revolving doors. Needless to say, all equipment is of the latest type, combining the features of safety and performance.

The success of our elevators depends upon their efficient maintenance and operation. Obviously these functions are closely correlated and interdependent. We have some 60 men engaged in their maintenance and approximately 400 in their operation. Because of our diversified work, this maintenance and operation is a continuous proposition.

In type our elevators range from hand-control to the most modern fully automatic signal-control cars. To illustrate the stress placed upon maintenance, we, on an average, have less than one trouble call per month per elevator, ranging from burned out lamps to failure to stop and level properly.

Our escalators and elevators, in addition to continuous maintenance, are supervised by our own inspectors, those of the city and of our insurance carriers. In fact, we have enough work in the Center to keep two insurance inspectors busy all the time. However *(To page 59)*

OPEN HEARTH HOOD. Made of asbestos or wool.-.013 wire-30 mesh. Fibre head piece combines light weight with safety. Cat. No. 602HW-4-A.

additional head protection by Kimball

The greater comfort and safety provided by these latest additions to the KIMBALL line of Safety Clothing are evidence that we will continue to meet new hazards in working conditions as they arise.

SKULL CAP. For wear under hard hats. Warm, light, comfortable — 20 oz. wool. Without flap SC-1. With flap SC-2.

EAR PROTECTORS. Wire mesh with soft plastic rims. Comfortable and close fitting. Without head band EP-1. With head band EP-2.

OTHER KIMBALL SAFETY PRODUCTS

EYE PROTECTION: *Spectacle Goggles, Welding Goggles, Composition Goggles, Sideshields.*

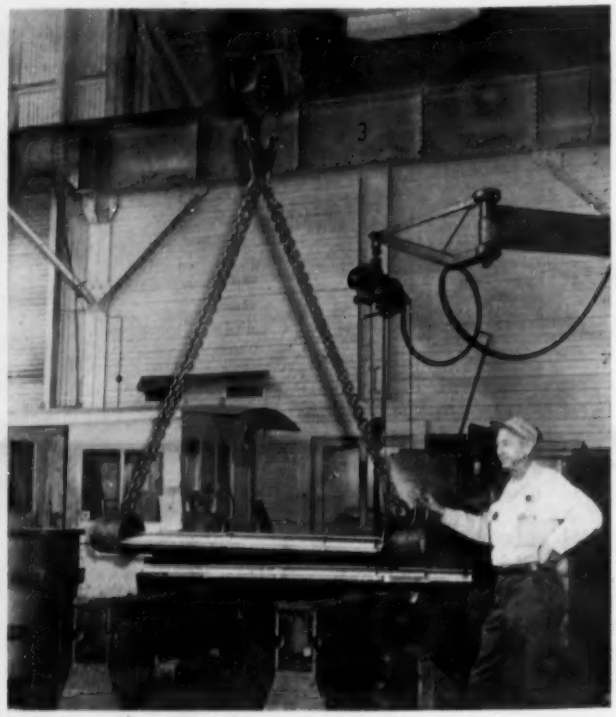
HAND PROTECTION: *GLOVES: Welder's, Asbestos, Steel Stitched. MITTENS: Welder's, Asbestos, Steel Stitched.*

BODY PROTECTION: *CLOTHING: Wool, Flame-Proofed Cotton. LEGGINS and SPATS: Leather, Asbestos, Flame-Proofed Cotton.*

APRONS: *Leather, Asbestos, Flame-Proofed Cotton.*

Kimball SAFETY PRODUCTS COMPANY

9310 Wade Park Avenue • Cleveland 6, Ohio



ANTI-FUMBLING DEVICE—They don't drop shafts at the Torrance, California, plant of The National Supply Company, manufacturers and distributors of oil field machinery and equipment. A short piece of pipe, capped on one end and with welded hook and handle, is placed over each end of a shaft before lifting. Flare on open end of pipe makes positioning easy.

Eye Protection

(From page 26) be carried out by the plant physician, foreman, and others concerned. If there is a frequency of eye accidents, there must be some underlying cause. Should the foreman notice any difference in efficiency and tempo of production in an individual's work, it should be brought to the employee's attention and a suggestion made to him that the cause may be attributed to poor vision. A visit to the plant physician may determine this factor and the condition corrected. The safety inspectors may find other causes that could lead to poor vision and if found should have the conditions corrected immediately. In checking your records you may find that the employee has not had his eyes examined for a long period of time and is past due for a periodic check upon his vision. With a good follow through program this condition would not occur because the employee would be informed of the situation and have the defect corrected.

One of the physical aspects of eye condition that cannot be overlooked is that of lighting. Safety begins with an adequately lighted, clean, and well-guarded industrial environment. While the plant may be clean and well-guarded, if the lighting is not adequate for employees to carry on their work efficiently and effectively, it will not only affect production but also cause the individual employee to become a potential accident victim. Some factors to be checked with reference to lighting are: uniformity, spotty illumination, light shields and glare, proper type reflectors, proper voltage, maintenance, clean shades, breakage and explosion condition. A great many times these conditions can, and will, cause serious eye hazards.

Rule Enforcement

At any plant where there are rules and regulations for the employees to follow, there must of necessity be some definite and sound procedure for exacting penalties of those employees who wilfully disobey the rules set down by the management.

The various plants of the American Car and Foundry Company have set up certain rules and regulations for their employees to follow. These rules are a direct order from the District Manager, or Works Manager, and must be carried out, not only by the hourly worker, but also by the members of the supervisory staff as well.

Every prospective employee is given a copy of these rules and regulations with the understanding that he will read them and should there be any question concerning their application, it will be explained to him so that there is no misunderstanding right from the start of his employment.

At the Berwick Plant of the American Car and Foundry Company, the Plant Rules are divided into four sets which are grouped according to their importance. Each group of rules have penalties for violation. In the first group of rules, #11 reads—

"Failure to wear goggles within the plant property other than while in office." Should an infraction of this rule be reported to the foreman, and after investigation it is found that the rule has been disobeyed, the following procedure will take place:

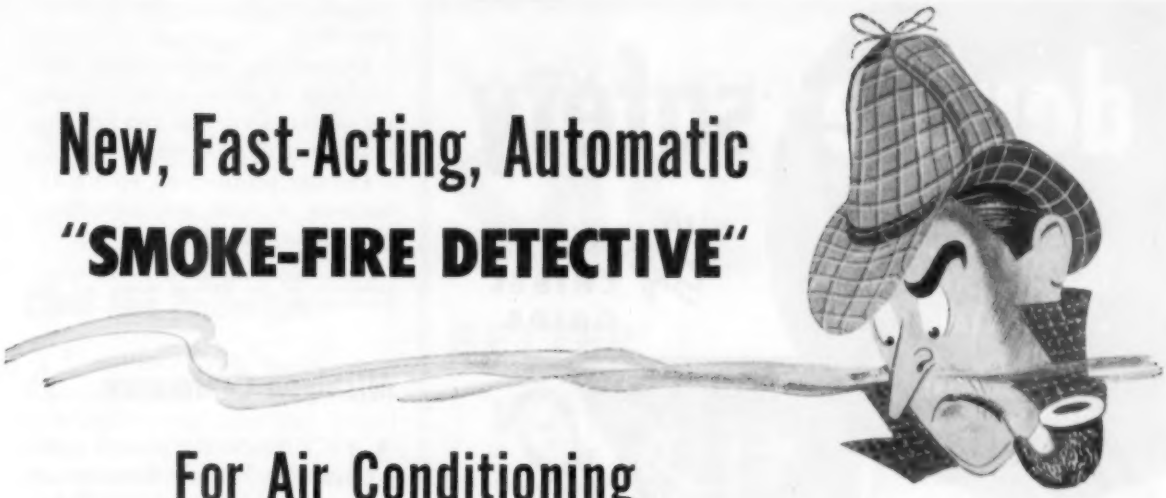
For the first offense, a warning slip is given to the employee.

For the second offense, a one day lay-off.

For the third offense, a five day lay-off is given and for a fourth offense—suspension subject to discharge. It is the foreman's responsibility to see that these penalties are carried out.

It is not our intention in establishing Plant Rules to set up a police force within the confines of our plant; nor is it intended to place any restrictions on the personal rights

New, Fast-Acting, Automatic "SMOKE-FIRE DETECTIVE"

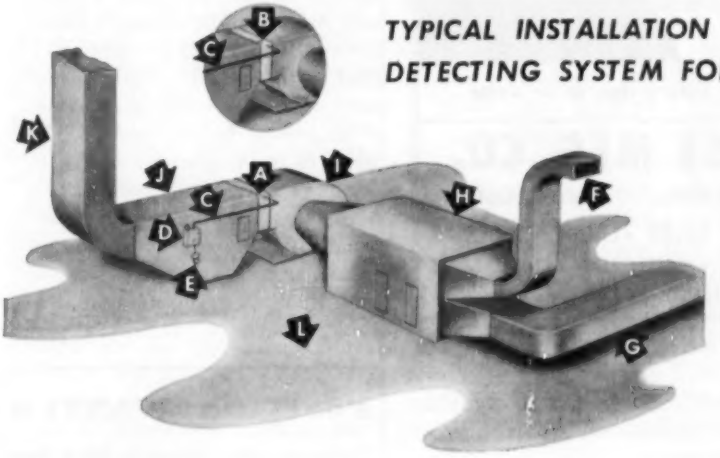


For Air Conditioning

Smoke in your air conditioning spreads fast . . . causes panic, spoilage and needless expense . . . now all can be avoided by installing a modern, fully approved C-O-TWO Automatic Smoke Detecting System.

Smoke, smoldering and fire are spotted in the incipient stage anywhere throughout the air conditioning ducts, as well as via the return air from air conditioned spaces. Four types of smoke detectors and several different installation arrangements are available to fit your particular needs . . . for small air conditioning units, for large air conditioning systems, and whether with or without electrostatic precipitators. All C-O-TWO Automatic Smoke Detecting Systems function by drawing continuous air samples through simple piping to a smoke detector. The first trace of smoke sets off an alarm, based on an exclusive operating principle . . . no chance of smoke spreading . . . the air conditioning instantly shuts down, dampers close and fire extinguishing systems actuate.

Act now for complete free information and descriptive literature on this newest contribution to modern fire fighting. An expert C-O-TWO Fire Protection Engineer will be glad to help you in planning economical, fully approved fire protection facilities without obligation. (Special assistance rendered to qualified air conditioning contractors.)



TYPICAL INSTALLATION C-O-TWO AUTOMATIC SMOKE DETECTING SYSTEM FOR AIR CONDITIONING DUCTS

- **A** perforated smoke accumulating pipe
- **B** smoke accumulating pitot tube (alternate)
- **C** pipe line for carrying continuous air samples to smoke detector
- **D** smoke detector
- **E** audible alarm
- **F** fresh air intake and duct
- **G** return air duct
- **H** air cleaning unit
- **I** air fan
- **J** air cooling and heating unit
- **K** supply air duct
- **L** floor level

C-O-TWO

C-O-TWO FIRE EQUIPMENT COMPANY
NEWARK 1 • NEW JERSEY
Sales and Service in the Principal Cities of United States and Canada
Affiliated with Pyrene Manufacturing Company

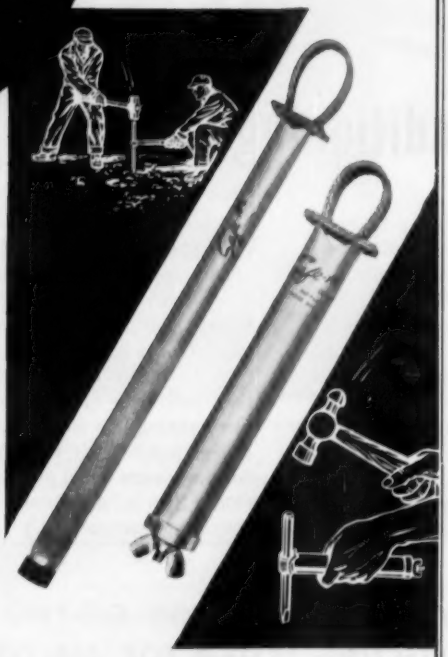
MANUFACTURERS OF APPROVED FIRE PROTECTION EQUIPMENT
Squeez-Grip Carbon Dioxide Type Fire Extinguishers • Dry Chemical Type Fire Extinguishers • Built-In Smoke and Heat Fire Detecting Systems
Built-In High Pressure and Low Pressure Carbon Dioxide Type Fire Extinguishing Systems

double safety

with... Safe-Hi CHISEL GRIPS

TWO MODELS
for greater production

- ONE FOR LARGE TOOLS
- ONE FOR SMALL TOOLS



Use for safe holding of star drills, chisels, stone points, punches, marking dies, etc.

ADJUSTABLE GRIP BAND of strong shock-proof fibre molded in rubber. Won't creep on tool.

TOUGH STEEL HANDLE for rough treatment. Keeps holder's hands well away from danger.

18" model

Use for large sledge-driven tools ...Holds tools up to 2¾" dia.

6" model

When one man both holds and hammers...Holds tools up to 1¼" dia.

PREVENT

- **Smashed fingers**
- **Flying chisels**

See your safety dealer or write

SPECIFY Safe-Hi PRODUCTS

ROSE MFG. CO.

730 Club Bldg., Denver, Colo.

• SAFETY BELTS • LADDER SHOES
• POLE GRIPS • WALL GRIPS • CHISEL GRIPS
• LIFELINES & LANYARDS

and freedom which we all cherish. But there are certain rules and regulations that are necessary for the safety and well being of the personnel in our plants in order that we can work efficiently, safely, and effectively.

If there are employees who are wilfully disregarding the rules and regulations, then they must be governed by the consequences of their disobedience.

In summing up the practical aspects of eye protection we can consider the following to be of value in protecting one's vision:

More stress given to a complete visual examination at the time of employment.

Follow through with at least a re-examination every two years. Greater care given to adjustment of eye protective equipment. Foremen to be made aware of their safety responsibility. Periodic eye examination, other than the two year examination. Proper illumination for the employees. Follow-through program on physical aspects of eye protection.

Cooperation, understanding, and education of all employees concerning proper care of the eyes and the importance of good vision.

Definite penalties set up for infractions of rules and regulations given by management.

From an address presented at the 1951 Annual Conference of the National Society for the Prevention of Blindness.

Michigan Conference

MICHIGAN, the seventh most populated State in the nation, is the country's leading industrial State, says Kenneth W. Thompson, President of the Michigan Safety Conference. "At the same time," continued Thompson, "Michigan has been recognized over the past decade as one of the safest States in the nation. Recent statistics from the National Safety Council reveal that Michigan's accidental death rate is 3.3 better than the national average."

"We believe," he added, "this is an excellent example of the important contribution made by Michigan Safety Conferences. The Conference this year, our 22nd, is being held April 7–10 at Detroit's Hotel Statler. The four-day meeting is filled with special programs and panel discussions covering all phases of on-and-off-the-job safety. The theme of the Conference is "Safety Begins In The Mind." Safety being everybody's business, the many sectional programs are slanted toward helping safeguard everyone from the hazards of their surroundings . . . inside, outside . . . at work, at play

POSITION WANTED

Position as Safety Director or Safety Engineer desired by middle-aged married man, with over 20 years experience in factory inspection, accident prevention and investigation, and safety educational and organizational work. Experienced as foreman in woodworking plant. Familiar with production problems. Southern location desired but not a requisite. Address replies to: Box 252, c/o Safety Maintenance & Production, 75 Fulton St., New York 38, N. Y.

. . . in the homes, stores, factories and farms of Michigan."

A feature of the Convention will be a large exhibit of late developments in the field of protective products, appliances and devices.

Rural Fire Protection

A COOPERATIVE fire protection program between cities and their nearby rural areas has been outlined by A. L. Kirkpatrick, manager of the Insurance Department of the Chamber of Commerce of the United States and secretary of its affiliated National Fire Waste Council. Mr. Kirkpatrick was addressing the annual meeting of the Agricultural Committee of the Council in Chicago.

Few rural areas have the facilities for maintaining an adequate fire department of their own, Mr. Kirkpatrick said. The joint city-rural program works to the advantage of both areas and is being adopted by more and more communities.

The speaker cited as an example the program which has been worked out at Muscatine, Iowa, between the city and four surrounding townships. Under an Iowa law, Mr. Kirkpatrick explained, the four townships voted a fire protection tax which raises enough money each year to pay the salary of two firemen. Citizens of the four townships also raised $15,000 to purchase a fire truck and equipment for rural use. Arrangements were then made through the fire prevention committee of the Muscatine Chamber of Commerce whereby the city agreed to house the truck in the central fire department in the city and to assign two city firemen to the truck. Thus a total of four firemen were assigned to the rural truck with two serving on each twenty-four hour shift.

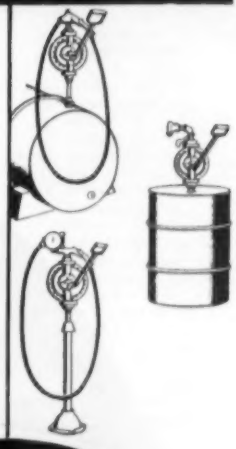
Muscatine now has the use of the truck and men for any fire in the city while it is not engaged in the rural area.

HANDLE LIQUIDS this

SAFER

BETTER WAY!

New Tokheim Pumps—a Great Step Forward in Industrial Safety



For safer, better handling of liquids, equip your plant with new Tokheim double-action hand pumps. Stop wasteful dripping and slippery floors. Reduce fire hazard and accidents common to other methods of liquid transfer. At the same time, they save on drum storage space. Fast, easy, double action with high suction efficiency speeds production, reduces operating costs. UL-approved for handling petroleum liquids—ideal for many others. Available in hose and spout models—for drums, skid tanks and underground installations.

Order from your dealer, your oil company, or your Tokheim representative. Write for literature.

QUALITY TOKHEIM DOUBLE-ACTION HAND PUMPS

General Products Division

TOKHEIM OIL TANK AND PUMP COMPANY

1672 Wabash Avenue, Fort Wayne 1, Indiana

Factory Branch: 1309 Howard Street, San Francisco 3, California

In *TOE SAFETY*... it's the INSIDE

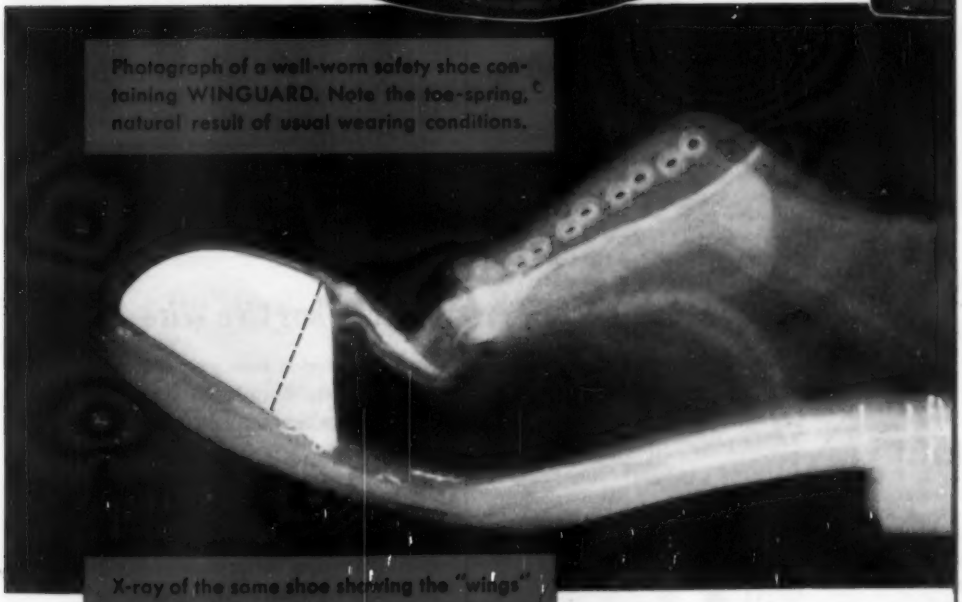
We concede that no safety box toe can be made regardless of its basic steel, its gauge, or its profile that can not be collapsed by unusually extreme striking force. As we see it, the job of a steel safety box toe is to reduce as far as possible the potential of the accident — to be so protective as to cause an important percentage of amputations to become fractures, and fracture cases to become abrasions, and in innumerable instances of lesser accident save the wearer from as much as a bruise. Since the best steels are already in use and since increased gauge means wearer discomfort from weight, only architectural improvement can make steel toes safer. Toes that resist back-tipping — that buttress the toe dome under extreme toe-spring — that present greater bearing surface against the shoe upper in resisting lateral spreading — may well mean the difference between minor and serious injury to the wearer. Such toes are available to your safety shoe supplier. They are known as WINGUARDS.

400
FOR SAFETY DRESS SHOES

500
FOR SAFETY WORK SHOES

story that counts

Photograph of a well-worn safety shoe containing WINGUARD. Note the toe-spring, natural result of usual wearing conditions.



X-ray of the same shoe showing the "wings" of WINGUARD still fully supporting the toe dome. Dotted line indicates the back edge position of non-wing types after toe-spring has forced the dome area to overhang the toe members.

WINGUARDS

safest steel box toes

SAFETY SHOE MANUFACTURERS LICENSED TO USE WINGUARD STEEL SAFETY BOX TOES
as of Jan. 1, 1952

UNITED STATES

Allen-Squire Co.
Spencer, Mass.

G. H. Bass & Co.
Wilton, Maine

Belleville Shoe Mfg. Co.
Belleville, Illinois

Curtis Shoe Co., Inc.
Marlboro, Mass.

Charles A. Eaton Co.
Brockton, Mass.

Endicott Johnson Corp.
Endicott, N. Y.

General Shoe Corp.
Nashville, Tenn.

Georgia Shoe Mfg. Co.
Buford, Georgia

Joseph M. Herman Shoe Co.
Millis, Mass.

Hill Bros. Co.
Hudson, Mass.

Holland-Racine Shoes, Inc.
Holland, Michigan

International Shoe Co.
St. Louis, Missouri

Iron Age Division
H. Childs & Co., Inc.
Pittsburgh, Penn.

Knapp Bros. Shoe Mfg. Corp.
Brockton, Mass.

Lavarenz Shoe Co.
Sheboygan, Wisconsin

J. F. McElwain Co.
Nashua, N. H.

Milwaukee Shoe Co.
Milwaukee, Wisconsin

Musebeck Shoe Co.
Oconomowoc, Wisconsin

A. H. Weinbrenner Co.
Milwaukee, Wisconsin

Wolverine Shoe & Tanning Corp.
Rockford, Michigan

CANADA

J. A. Blais, Inc.
St. Cesaire, P. Q.

G. A. Boulet, Limited
St. Tite, P. Q.

Canada West Shoe Mfg. Co., Ltd.
Winnipeg, Manitoba

J. A. & M. Cote, Ltd.
St. Hyacinthe, P.Q.

Daoust, Lalonde, Inc.
Montreal, P. Q.

Frontenac Shoe Ltd.
Quebec City, P. Q.

The G and B Shoe Co.
Campbellford, Ont.

Greb Shoe Co., Ltd.
Kitchener, Ontario

Hydro City Shoe Mfrs. Ltd.
Kitchener, Ontario

Palmer-McLellan Shoe Co., Ltd.
Fredericton, N. B.

The T. Sisman Shoe Co., Ltd.
Aurora, Ontario

The Stag Shoe Co., Ltd.
Montreal, P. Q.

Sterling Bros., Limited
London, Ontario

Tetrault Shoe Ltd.
Montreal, P. Q.

The Tillsonburg Shoe Co.
Tillsonburg, Ontario

Underhills' Limited
Barrie, Ontario

Valentine & Martin Ltd.
Kitchener, Ontario

Williams Shoe Ltd.
Brampton, Ontario

SAFETY BOX TOE COMPANY
812 Statler Office Building
Boston 16, Massachusetts

subsidiary of
Beckwith Manufacturing Company, Dover, N. H., sales agents for the United States. Canadian sales agents: Beckwith Box Toe Ltd., Sherbrooke, P.Q.

SAFETY MAINTENANCE & PRODUCTION Salutes a Safety Idea for APRIL

Dye your Concrete Red when you Pour it over Underground Electric Lines!

THE Celanese Corporation of America chemical plant at Bishop, Texas makes it a standard practice to color concrete encasing the underground electric conduits and duct lines with red pigment primarily for safety. In the plant area the soil is extremely corrosive to underground lines and in many places shallow underground water is encountered. Therefore it is necessary to protect ducts carrying electric conductors with a medium to prevent their early destruction.

Once the concrete has set around the lines and the ditch backfilled, this concrete will appear just as any other—maybe an old abandoned drain, a piece of an old foundation block, or what have you. When it is necessary, however, to excavate for new installations over and around these underground lines and the red concrete is found, the color immediately warns the excavating crew that live electric conductors are within a few inches of their jackhammer or picks and shovels. Arrangements are then made to preserve carefully the concrete envelope and work around or under it as the occasion demands.

This timely warning has saved men who might have been electrocuted had they not been warned by the danger sign—RED COLORING. It also prevents the rupturing of the cable with an ensuing aftermath of electrical power failure and expensive repairs.

Be Fresh Stay Fresh

wear a DUPOR
Water-Cooled
SMOKE MASK
Equipped with "Nod & Shake" Fog-Proof, Gas-Tight Goggles

For combined eye and lung protection of painters, foundrymen, smelters, oil refiners, chemists, firemen, etc. Sponge filter, soaked in water before wearing, keeps out paint spray, smoke, fumes, dusts; provides cool, clean air at every breath. Air-tight goggles give absolute eye protection. Goggles are fog-proof too.

Sample sent $5.00 pp

wear a DUPOR No. 20
Water-Cooled Respirator

Double sponges dipped in water before wearing provide cool breathing even under hot, smoky conditions. Recommended for use of workers in paint shops, foundries, steel mills, oil refineries, chemists, firemen, etc. Face mask is of rubber, equipped with DUPOR "controlled breathing" valves. Wearer has a panorama view with no blind spots. Glasses or goggles can be worn with unit.

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For the best in eye protection get H. S. Cover's Gas-Tight, Fog-Proof Goggles.. $2.00 pp.

H. S. COVER, South Bend, Ind.

Watch That Live Wire

(Continued from page 34)

to extinguish them. Use vaporizing liquid or other non-conducting extinguishers.

Accidental Ground

Accidents and injuries resulting from the use of portable electric tools and equipment occur quite frequently. Defective insulation permits the frame of the tool to be energized at, or near line potential, thus exposing the workmen to shock. Frequently, the injury from shock is minor compared to the injury resulting from a fall from a ladder or scaffold because of the shock. Grounding many of these portable tools is impossible or inconvenient. Proper maintenance and inspection is necessary.

Insufficient clearance between

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power lines and working equipment (cranes, scaffold supporting cables, etc.) is another common electrical hazard.

Overload

The electrical industry manufactures a wide variety of devices to protect machines from overloading, arcing, etc. And the majority of them are reliable when properly maintained. The biggest source of overload troubles comes from the improper use of the ordinary fuse box. When a fuse blows (which indicates troubles in the system), instead of getting a new fuse from supply, many people will insert a piece of wire or the well known penny. The wire or penny will carry considerably more current than the wiring of the circuit, hence they are no protection whatsoever. In connection with this, most electric motors are capable of producing many times their rated horsepower for short periods of time. Safety factors will be exceeded and trouble can come from any corner. Using circuit breakers extensively will tend to eliminate this—providing you can also eliminate the jokers who will tape down a circuit breaker button.

Breaking Connections

Dangerous electrical practices concerning "Breaking Connections" are mostly technical in nature, and beyond the scope of this paper. It will suffice to say that, although opening an electrical circuit makes it safer to handle in the vast majority of cases, there are some instances where opening a circuit is very dangerous. For example, if the secondary circuit of a current transformer is opened, the voltage builds up and greatly exceeds the designed limit, endangering anyone working on the system.

Opening the field circuit on some types of motors causes them to speed up to the point where they fly to pieces. Under circumstances like these, the best solution is to see that only adequately trained personnel are employed for such work.

Simple Rules to Follow

1. Do not guess about whether a circuit is alive or not. Consider every one alive until proved otherwise.
2. Use proper instruments for testing circuits.
3. Never touch any wire of a circuit unless you know that it is dead.
4. Use safety equipment, such as rubber gloves, rubber mats, fuse tongs, insulated tools, etc.
5. Lock open main switches and place tags before working on power circuits so that no one else may close them while you are working. Before closing a switch, make certain other workmen are clear of circuits.
6. Use danger signs and rope off dangerous areas.
7. When installing temporary electric wiring or apparatus, make every job safe.
8. Permit only qualified men to

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work on electric apparatus.

9. Arrange for proper maintenance of equipment, leads, and wires, with careful follow up to see that insulation is in proper condition.
10. Never bridge a fuse with wire or other metal.
11. Never permit men to work on live circuits alone.
12. Don't test power lines with lamps to determine whether they are alive. A 110-V test lamp placed across a 440-V line will blow up. Use voltage testers for this purpose.
13. Ground all stationary, electrically driven equipment.

High Voltage Hazards

Working with high voltage electricity is done almost exclusively by the utility companies, and their safety procedures are in accordance with the National Electrical Safety Code and the companies' own safety regulations. Without going into extensive detail, some of the more common circumstances are as follows:

Overhead Lines

Layout of Lines. The national code lists many regulations concerning the arrangement of lines on poles and crossarms. Fig. I is a top view of a pole showing reservations of area for unobstructed climbing space.[1] Dimensions and specifications vary according to the voltage, types of lines, etc. Specifications also cover the vertical distance between crossarms. Enough height is allowed so that if a lineman's spurs should slip out of the pole, his safety belt will catch him before he strikes the hot wires below.

Maintenance Safety Procedures

When it is necessary to work on a section of highline, the poletop switches are opened at both ends of that section, completely isolating it from the rest of the circuit. But that is not all that is done. When the section is isolated a weighted line called a "cat's paw" is thrown over and across the lines. This line is used to pull a heavy bare wire up across the now dead power lines. The wire reaches from the earth to the power lines and is grounded at the earth end. This ground wire would prevent the linemen from being electrocuted in the event that current should somehow get into the lines.

When working on hot lines under 4800 volts. one lineman installs portable protective insulation, while the other acts as an observer. The rubber protection sheets are installed one piece at a time covering the nearby points first and the distant points last.[2]

Several other very important procedures for linemen are:

1. Whenever possible, work on line wires from below.
2. Avoid moving backward against

[1] National Electrical Safety Code, Sec. 23. Clearances.
[2] Proposed Safe Practices — Accident Prev. Sect., L. A. Dept. W. & P.

wires or equipment which may be alive.

3. Do one thing at a time and keep eyes on work at all times.
4. On wooden poles, all ground lines in the working should be covered with protective insulation whenever any other conductors are covered.

Safety Can Be Big

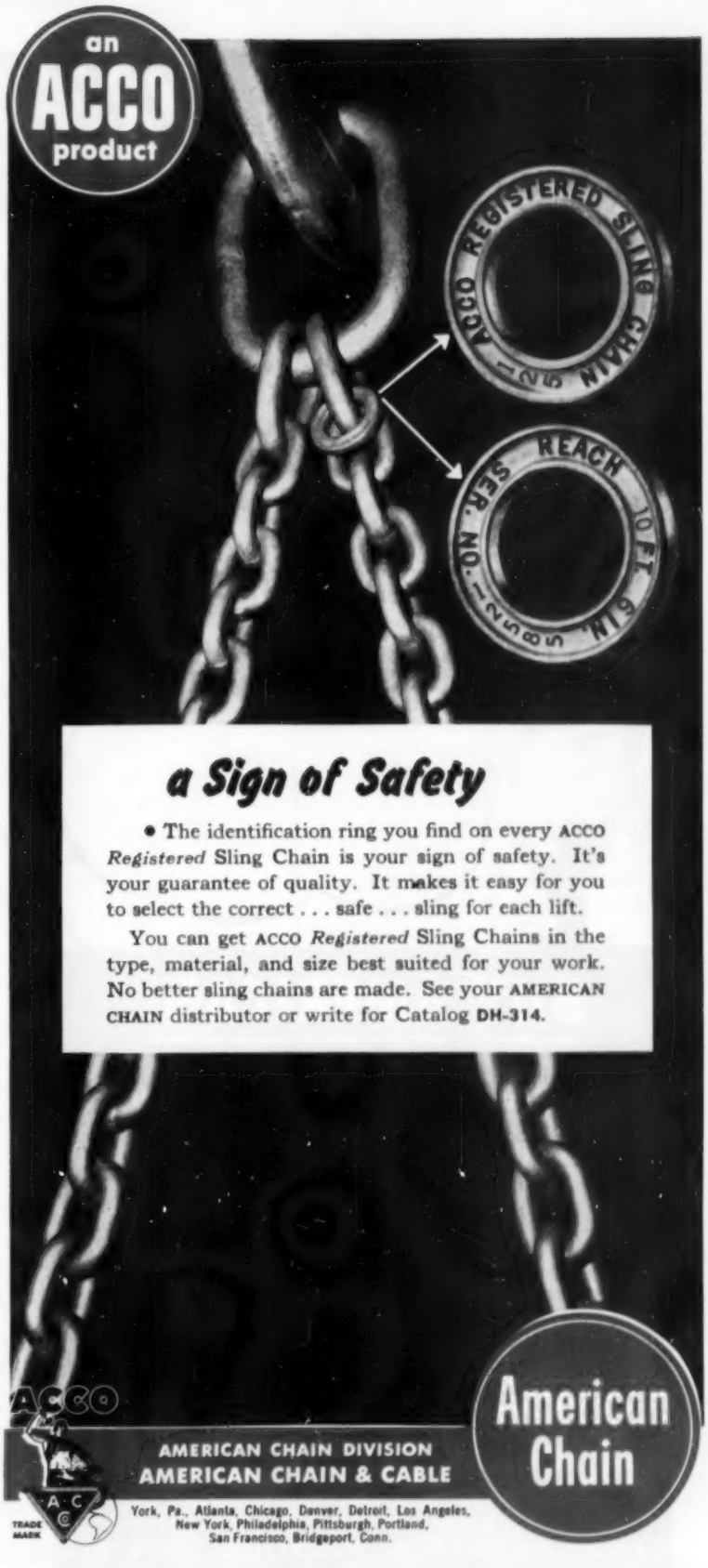
(From page 30) are taking a course twice a week to complete the study. This figure is constantly being increased as more men and women take advantage of the free first aid course. Safety awareness in the home, on the highway and at the plant is developed by greater knowledge of first aid. Also, an injured person has a much better chance of receiving competent help early. Wives of employees will be offered this course. The goal is 100 per cent. American Red Cross materials are used.

Physical examinations. Every employee receives a check of his visual ability yearly. The purpose is to uncover any eye weakness and use this knowledge in placing the man where he won't get hurt. The Sight Screener is not a prescription-issuing device. If an employee wants to do something about an eye condition revealed to him through the Screener, Ansul is pleased, but there is no compulsion by the company.

Audiometer program. This is the same as the Sight Screener Program, but involves the ears instead of the eyes.

Tetanus toxoid program. Seventy-five per cent of Ansul's employees have taken advantage of free tetanus toxoid shots, a preventive measure against lockjaw.

Complete dispensary service, with a physician on duty three mornings a week. There is competent help at other times, too. Ansul plans to hire a trained nurse for full-time duty. Dispensary facilities stimulate fast action against ailments and cut down the chances of accidents.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TRANSPORTATION

School for Accident Investigators

THE role which accident investigation plays in traffic safety, training policemen to investigate accidents, and setting-up accident investigation units, are just a few of the many things that will be taught in a new, specialized course to be conducted at the Traffic Institute of Northwestern University this spring.

The course, "Accident Investigation—Administration and Techniques," to be offered May 19 to June 6, is the first of a new series of integrated, short courses being developed by the Institute. The courses are designed to meet the need of police departments all over the country for training key personnel in specific traffic functions, according to Franklin M. Kreml, Institute director.

October Course

One other course in the new series, "Traffic Law Enforcement Planning and Evaluation," will be offered in 1952. It will be held at the Traffic Institute from October 6 to 24. Other courses dealing with specific traffic functions such as police traffic engineering, training for police instructors, traffic law, traffic records systems, and directing traffic will be offered next year.

These new courses—each complete in itself—are part of the Traffic Institute's expanded training program which, beginning this fall, will include lengthening the courses for traffic police administrators from the present four and one half months to nine months.

Police officers eligible to attend the new accident investigation course include commanding officers of traffic divisions, officers in charge of accident investigation units, and potential command and supervisor personnel. After attending the course, Mr. Kreml said, police officers will be equipped to either (1) set up a new accident investigation program or (2) improve the quality of an existing program. Further information may be obtained by writing: Director of Training, Traffic Institute, 1704 Judson Avenue, Evanston, Ill.

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Plan for Emergency Traffic Control

By CHARLES A GOODWIN *

Industrial plants should set up a program for keeping vital roads open for the passage of emergency vehicles at a time of catastrophe, accidental or otherwise.

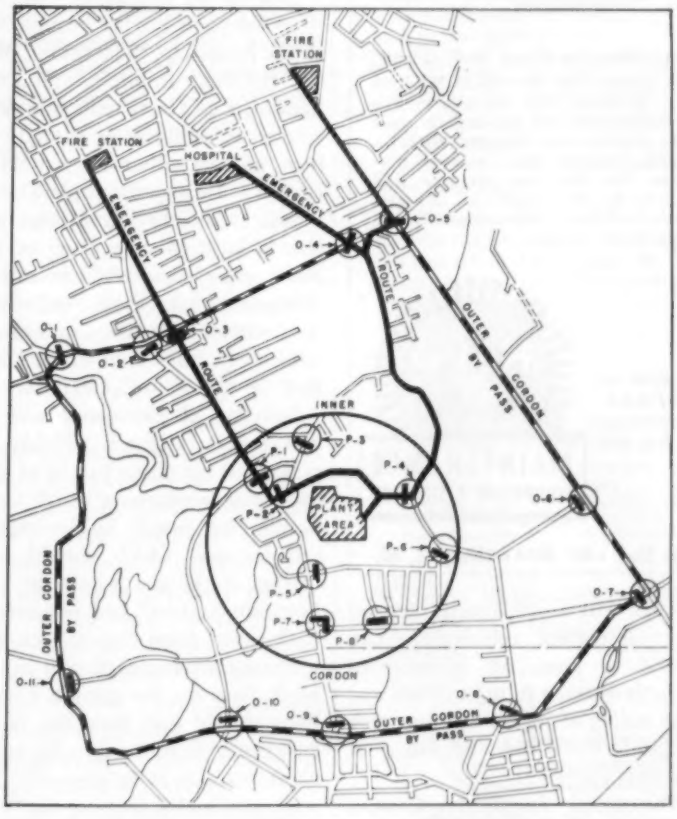
WHEN a fire, explosion or other catastrophe occurs at a plant, it is vitally important that fire apparatus, ambulances and other rescue vehicles be able to reach the stricken area quickly. Material damage must be minimized and injuries cared for promptly in order to shorten the period during which production will be interrupted.

Unfortunately, when the need is greatest for keeping access roads open to a stricken area, the obstacles to achieving this goal are also greatest, for the following reasons.

1. "Curiosity seekers" dash to the scene from nearby roads and, if uncontrolled, will completely clog the approaches for rescue vehicles. In a number of instances plants have burned to the ground while fire apparatus less than half a mile away was vainly trying to break through a wall of sight-seers' vehicles. The plant protection official at that plant was handicapped by lack of a complete traffic interceptor control plan to prevent traffic interference during an emergency.

2. Plant employees en route to or from the plant may unintentionally cause traffic blocks unless properly directed. Fires or explosions caused by bombings may be timed for shift changes when access roads are filled to overflowing with workers' cars. Catastrophes of accidental origin have frequently occurred at this particular time. In one case recorded during World War II all traffic on a military emergency route in the vicinity of a war plant was blocked for five hours when the oncoming and offgoing shifts met near the plant following an air raid alarm. As a result, anti-aircraft combat teams were unable to move to the threatened area.

Our company, as an insurance carrier, has cooperated with a number of policyholder plants in the development of plans for eliminating



A sample EMERGENCY TRAFFIC CONTROL PLAN

Posts P-1 through P-8 within the "inner cordon" circle are manned by plant personnel to protect emergency routes in the immediate plant area.
Posts O-1 through O-11 are manned by city and county police and form the "outer cordon" to prevent vehicles from clogging the emergency routes leading to the plant. The "outer cordon" also serves as a by-pass route to shift traffic away from the plant.

* The author is Traffic and Transportation Engineer for a leading insurance company.

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the possibility of serious traffic tie-ups of emergency vehicles. These plans have been developed to meet the individual conditions at each plant. In order that other plants may take advantage of the methods developed, we present here a general description of the elements to be considered in making plans for traffic interceptor control.

The purpose of this plan is to establish, by means of strategically placed interceptor posts around the emergency area, a protective cordon through which only emergency and other authorized vehicles are permitted to pass. All nonessential traffic is directed to right or left and kept rolling so that it will not stack up and block the approach of emergency vehicles.

The sample Interceptor Control Plan is located at the fringe of a typical large city which relies for emergency service on two fire stations and one hospital located about two miles from the plant.

With the sample Control Plan as a guide, the Safety Engineer or Safety Division and Planning Department of any plant can prepare a very effective control system based on all pertinent information and fitted to their specific needs.

Preparation of Control Plan

Map Scale: An Emergency Traffic Control Plan should be plotted on a black and white standard city map such as is available at the office of City Engineer or City Planner. The maximum scale required is 400 feet to the inch and the minimum scale, 800 feet to the inch. The basic map should not contain more detail than street lines and names, outlines of bodies of water, and railroad tracks.

The use of a map in the 400 to 800 foot scale range will permit legible plotting of the necessary details in the plant vicinity in the order described below.

Location of Emergency Facilities: After the plant site has been plotted on the basic map, the locations of all fire stations, hospitals, ambulance stations, Red Cross units and other emergency facilities in the city are then plotted either by symbol or labeled outline (see sample Control Plan). Complete information relative to location of existing or proposed emergency facilities can be obtained from those individuals or agencies directly concerned—namely, the Fire Chief, Police Chief, Red Cross, Safety Council, etc.

Selection of Emergency and By-Pass Routes: Highway officials and police and fire chiefs can be of great assistance in planning which routes should be used by emergency vehicles and which should serve emergency by-pass routes to carry "curiosity seekers" and nonessential traffic away from the stricken area.

Emergency routes, shown in solid black lines on the sample Control Plan, should lead from the various emergency facilities directly to the plant or plants to be serviced.

By-pass routes, framing the "outer cordon," are shown as broken lines on the Control Plan. These routes should form a continuous and circuitous network to drain off traffic from the emergency area and permit it to move freely.

Where emergency routes cross railways at grade, arrangements should be made in advance with the officials of the railroads to provide the manpower necessary to keep these crossings open during the emergency. Freight and passenger train movements must be stopped at all costs within the emergency area to prevent the critical cutting off of emergency vehicle flow to and from the plant. It is conceivable with the modern signal equipment and minimum train crews available, that an effective check of train movements can be effected in a matter of minutes.

Location of Interceptor Posts: Interceptor posts should be established as shown on the sample Control Plan. Each post is circled and given an identifying number. It will be noted that these posts are located at intersections so that it is never necessary for directed vehicles to make a U-turn which would interfere with emergency vehicles and delay all approaching vehicles to the point where traffic would soon become blocked.

The plant area is protected by two interceptor bands—an inner cordon enclosed by the black circle and an outer cordon enclosed by the black broken line. The *solid* black roadways are the emergency routes which lead directly to and from fire stations, hospitals, ambulance service, etc.

Inner Cordon: Interceptor posts, to form an inner cordon, are of primary importance and should be carefully selected. They should be manned immediately in order to hold off and clear away from the plant area all public traffic that happens to be nearby when the catastrophe occurs. These posts should be covered by members of a Plant Emergency Organization because they are the only ones who will know soon enough and be near enough to reach the posts before public traffic has a chance to get inside the cordon and become a tangled mass around the emergency area. It will be noted that the numbers of these posts, shown on the Control Plan, have the prefix "P" indicating that they will be

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SEE PAGE 11

manned by plant police or deputized personnel.

Outer Cordon: Other interceptor posts (designated by the prefix "O" on the Control Plan) form an outer cordon which is designed to keep important access roads, particularly fire and ambulance routes, from clogging between the inner and outer cordons. These outposts should be manned by state, county or municipal police depending on jurisdiction, as soon as they can be notified through a prearranged communication plan. It has been found that after the first 10 or 15 minutes of directing traffic at the inner cordon, the difference in speed between vehicles rushing toward the plant and those reluctant "curiosity seekers" diverted away from it, causes a backing up of traffic which will clog the approaches unless the load is taken off farther back. The outer cordon performs this service while at the same time traffic is guided along by-pass routes marked by broken lines on the control map.

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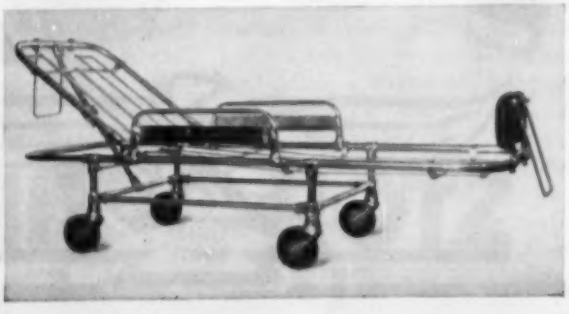

Operation of Control Plan

Traffic Control at Interceptor Posts: On the control map, solid black lines across the intersections at each post indicate the points where non-essential traffic should not be permitted to enter access roads to the plant.

Post officers should keep all traffic moving. No parking or stopping in or near the intersection should be permitted. Drivers wishing to go in the prohibited direction must be made to turn right or left or to continue straight ahead in accordance with the control diagrams without delay. Each post officer should have a traffic whistle and use it freely to keep traffic moving away from his post. An emergency vehicle may want to cruise through his intersection at any time so it must be kept clear. No U-turns should be permitted because such turns delay and tangle traffic quicker than any type of movement.

The traffic coming from the emergency area should, of course, be permitted to pass through the barrier line away from the area. It is not anticipated that any great amount of traffic will be travelling in this direction because employee cars at the plant, when a catastrophe occurs, will be held there until the emergency is over.

Control of Employee Vehicles:

Vehicles en route to the plant—If the emergency should occur while a shift is on the way to the plant, this shift should not be permitted to enter the stricken area until the emergency is over. It would only serve to congest and confuse fire fighting and rescue operations. Therefore, interceptor guards should treat employee vehicles of an oncoming shift just as they would general public traffic and direct them off the main routes and away from the emergency area. It is well to have a prearranged assembly point outside of the emergency area where the oncoming shift can await developments, and further instructions from the plant.

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lots—If an emergency should occur between shift changes, there would be no immediate problem of controlling employee vehicles unless panicky employees attempted to leave the emergency area in their cars. This should be prevented by the plant guards at the parking lot because a general exodus of hundreds of cars over the access roads in the opposite direction from that in which emergency vehicles are trying to travel to the plant might cause serious accidents and would most certainly delay the emergency vehicles. Employees should go by foot to a safe place and remain there until the Chief of Plant Protection approves the movement of their cars.

Posting of Interceptor Guards:

Inner Cordon—Selected members from each shift of the plant forces should be assigned specifically to the different posts of the inner cordon. Thus, there will be one man on each shift who is definitely responsible for each of the interceptor posts in time of emergency. Where possible, alternates should be appointed also to take care of absences or to have two men on duty simultaneously at posts where conditions require it. Nearby posts can usually be reached on foot if manned by men from the plant stations nearest to them.

Outer Cordon—The regular police officers assigned to the "O" posts are arranged for in advance by conferences between the Chief of Plant Protection and the police heads of the various jurisdictions involved. Mobile patrols will be needed to cover the outer cordon roadways because of the greater distances involved.

Practice drills should be held to perfect the system of traffic interception by the Plant Emergency Organization, to acquaint its members with the best and quickest means of reaching their assigned posts, and to give them practice in handling traffic there. When holding a practice drill, the Chief of Plant

(Continued on page 63)

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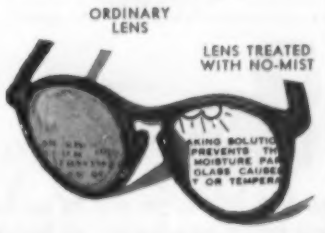

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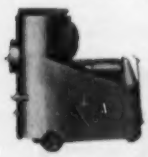

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THE FIRE FRONT

Radiation Facts for Firemen

GRANTED various magnitudes of destruction from atomic weapons, there will always be a periphery zone from which rescue workers can attack, control, and reduce devastation. Such is the premise of a new publication by the International Association of Fire Chiefs which sets forth, for the fire fighter, practical guidance in dealing with radiological hazards, radiation detection, and protective and decontamination measures.

Radiation and Monitoring Fundamentals for the Fire Service provides a section on elementary atomic physics "in a less technical vein and more easily understandable language" than that for the top-level technician. With this step towards removing nuclear physics from the "unclear physics" category, the 42-page book proceeds with practical information on the effect and damage range of blast, heat, radiation, and the general features of atomic explosion.

The section on fire department monitoring lists immediate needs in equipment and manning, and outlines procedure step by step. Several decontamination techniques are given, explained as "essentially a process of washing, cleaning, and safe disposal of radioactive 'dirt'." The all-important subject of personal protective measures for firemen concludes the volume.

A selection of references for further reading supplements this work which is illustrated with 17 charts, diagrams, and photographs. The present book is a sequel to an earlier publication of the Association, Radiation Hazards of Radioactive Isotopes in Fire Emergencies, issued in 1950.

Available from the International Association of Fire Chiefs, 22 East 38 Street, New York 16, New York. Price $0.75; reduced rates for quantity orders.

Testing of Flameproof Fabrics

A FLAMEPROOF fabric may be defined briefly as one which is not ignited readily by small sources of ignition such as matches, cigarette lighters, sparks, small coals, and smoldering cigars and cigarettes; or in somewhat more exact terms, a fabric on which such flaming or smoldering combustion as does oc-

Service

Service is right! Extensive factory-proven tests show that DAVID'S Wing Thumb Gloves wear half again longer than ordinary regular thumb gloves. Shown above is our 622BW—a full leather palm heat-resisting glove with seamless leather index finger, knuckle strap and pull tab. No thumb seams to wear out. Sample pair available at no charge to accredited accounts. Wing Thumbs available in all DAVID'S leather gloves. Write for our new, illustrated Catalogue and Price List with over 1,000 glove styles.

DAVID'S GLOVES INC.
DEPT. SM
23 WEST PLEASANT
SPRINGFIELD, OHIO

cur from exposure to a small source of ignition does not spread on the fabric beyond the vicinity of the source of ignition.

A bulletin of the National Board of Fire Underwriters reports that a small scale laboratory test for flameproofed fabrics has been developed using strips of material, which are hung in a tube or shield, and an igniting flame applied for a definite period at the bottom. Satisfactory performance is indicated when the fabric does not continue flaming for more than two seconds after the test flame is removed from contact with the specimen, and the vertical spread of flame and afterglow (smoldering combustion) on the fabric does not exceed specified limits. This test gives a definite index as to flame spread on various materials and the effect of various flameproofing treatments, but nothing as to the permanency of such treatments, which is of great importance to the authorities interested in maintaining safe conditions. Such permanency tests as have been made generally involve some laboratory precedure for accelerating conditions relative to aging and service with subsequent check tests for charring.

The need for a standard procedure for routine field testing is apparent, particularly since most types of materials are accepted for use without limit as to amount or kind after some degree of flameproofing has been applied.

Cotton fabrics are the materials commonly used that are considered most hazardous. Other materials, such as acetate rayons and linens, are somewhat less hazardous, and woolen and some natural silk fabrics, even when untreated, are about the equal of the average treated cotton fabric insofar as flame spread and ease of ignition are concerned. The type of fabric, with particular reference to its weave and pile, also enters into its burning characteristics especially the retarding effect of flameproofing materials.

Periodic Tests Needed

After fabrics are installed, unless they are listed by Underwriters' Laboratories, Inc., as having a permanent treatment, check tests should be made periodically. For draperies a test once a year may be sufficient, but for materials receiving much use it may be necessary to have tests every six months. Tests to be effective for field use must be simple since they should be frequent and in most instances many spot tests are necessary in each establishment in order to assure that all fabrics, both surface materials and linings, are satisfactory. Experience has shown that with flameproofing compounds that are applied in the field there is a wide variation in the results obtained, particularly where some general formula has been used in preparing a mixture and no manufacturer's directions are available covering its use, as is the case with most ready-

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the modern, economical oil and grease absorbent that keeps your floors dry, clean and safe, and reduces maintenance costs.

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FLEXIBLE STRETCHERS

Every casualty, no matter how slight or how serious, can be made worse by rough or improper handling.

You will find the REEVES the best STRETCHER for an emergency. They are used by many industrial plants, hospitals, first aid and rescue squads, police and fire departments throughout the country.

STRETCHER CANISTER

Keep your stretcher ready for an emergency. Store it in a Reeves Stretcher Canister where it will be protected from dirt, dust and dampness.

A. Smith & Son, Inc.
Established Eighteen Hundred Sixty-Seven
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"If It's Made of Canvas, We Make It"

mixed solutions.

A simple and easily made field test is the match flame test. In conducting this test, a sample of the material is taken to a location where the test may be conducted safely. The sample is held in a position favorable to burning and tested by application of a flame from a common paper match held in a horizontal position, ½-in. under the sample, and at a constant location for a minimum of 15 seconds. Observations are made to determine that the textile sample does not ignite and spread flame over its surface.

Another method for making field tests is to use a special slotted clamp in which a portion of freshly cut edge of the material to be tested is placed. With the clamp slot in a vertical position, the section of the fabric is ignited along the lower edge by means of a candle. This field test is intended to accomplish a result similar to that achieved by the laboratory test referred to above. To use this device on installed material and not mar the material in such a way as to prevent its further use, is somewhat difficult and slow. Its use does, however, give some better indication of the length of char. The clamp prevents dangerous flame spread on fabrics lacking satisfactory treatments. Due care must be taken in its use in the presence of flammable materials.

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Use DAV-SON Cork Back Bulletin Boards for pinning up notices, letters, photos, etc. Many sizes and styles available for your particular requirements.

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We manufacture the famous DAV-SON Changeable Letter Bulletin Boards, Safety Displays, Lobby Directories and Name Plates for every purpose.

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A.C. DAVENPORT & SON, INC.
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Evaluating the Results

A fact perhaps not generally understood is that in making flameproofing tests it makes little difference whether the testing flame is a match, candle or blow torch since actual ignition is largely a matter of supplying a sufficient quantity of heat to raise a portion of the material to the ignition temperature; higher temperatures than needed for this purpose have little or no effect on ignitibility, though the volume of flame used as a testing medium contributes to a greater charred area.

Some fabrics will flame within the area covered by the igniting flame, but as long as the flame does not continue for an appreciable time after removal of the source of ignition they should be considered satisfactory. Many treated fabrics will not flame either during the time of exposure to the igniting flame or after the igniting flame has been removed. Strictly from the preventive point of view, it is not important if the material is charred during the exposure as it has served its purpose if it has not contributed to the general spread of flame. The question of glow is of more importance. As long as the glow remains in the charred portion it does not assist in the burning of the fabric, but progressive after-glow is dangerous and may cause complete destruction and assist in spreading a fire.

Further details are available from the National Fire Protection Association, 60 Batterymarch Street, Boston 10, Massachusetts at 35 cents a copy.

For Clear Safe Vision — Glass and Plastic

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ESSENTIAL for EYE SAFETY

A necessity for effective safety-goggle programs, K-LENS-M Lens Cleaning Products have been standard equipment in leading industries, business offices and government installations for over eleven years. K-LENS-M Lens Cleaning and Anti-Fogging Stations encourage workers to wear goggles by eliminating dirt and fog which hamper vision.
K-LENS-M costs little . . . actually pays for itself in increased efficiency, greater accuracy and fewer accidents.

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Send for* FREE *Sample

GREATEST ADVANCE IN *eye safety* SINCE THE INVENTION OF GOGGLES

The K-LENS-M Liquid Lens Cleaning and Anti-Fogging Station —the economical, efficient way to clear vision.

With K-LENS-M Lens Cleaning and Anti-Fogging Stations, your workers can have **clear** protected vision at all times. Whatever your plant conditions, employees won't have to remove goggles or shields because of dirt or fog—and risk loss of eyesight.
Modernize your eye safety program with

K-LENS-M Liquid Lens Cleaner for thorough cleaning of glass or plastic eyewear.

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K-LENS-M Dispenser Cabinet with Anti-Fogging Station is a complete lens cleaning unit; easy to install, use and service.

Contact your safety equipment supplier or write direct to

The WILKINS Co.,
INCORPORATED
CORTLAND 2, N. Y.

Rockefeller Center

(From page 38) we try to impress upon the men the importance of doing a good job for the job's sake and not because of our inspection, and that a job carefully done is usually a good one.

Revolving doors present quite a problem. We have two experienced mechanics who spend most of their time maintaining them. Our doors are equipped with governors to control the speed at which they revolve. The door leaves are so constructed that in accordance with city specifications they collapse under certain pressure to prevent congestion and panic. The floors of the revolving door enclosures contain an abrasive to prevent slipping. The enclosures are equipped with special ceiling and side lighting. In inclement weather, mats are placed at all entrances to prevent slipping and falling.

Fire prevention is strongly stressed at the Center. We have a clearly defined fire control schedule applying to the various divisions in which fire duties are set up on a job operation basis. Fire calls have priority over all others. Supplementing the usual supply of fire prevention equipment, each building has a portable fire truck equipped with extinguishers of various types, fire tools, gas masks, etc. In addition, there are portable extinguisher units, temporary lights, and sand-bag trucks for use in case of fire or flood. We conduct periodic fire drills and have the more than 3,000 extinguishers serviced and tested each year.

Safety Program

Regarding the safety of our own personnel, in each division there is a safety committee composed of members representing each phase of the work. The committee functions under the chairmanship of the division head. We schedule periodic meetings for the discussion of topics pertinent to that division, as well as to the organization *(To page 61)*

with STANLEY "Flud-Lite" Eyeshields

Here in the tool crib of a leading manufacturer, workers re-sharpen drill bits with speed and safety. Stanley "Flud-Lite" Eyeshields aid vision . . . protect grinder operator from flying particles at all times. Two window sizes, 4" x 6" No. 600 and 6" x 10" No. 630—fit all grinders and are easily adapted to other machines. Ask your dealer or write for literature to: Stanley Electric Tools, 427 Myrtle St., New Britain, Connecticut.

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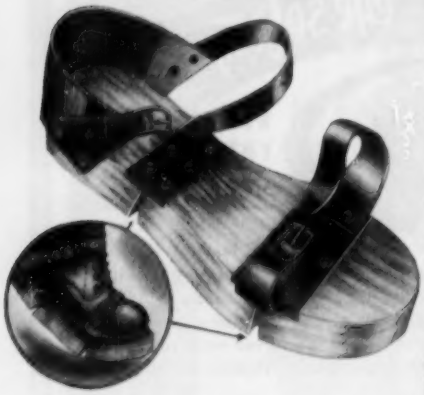

No. 351—For hot steel. Straps on quickly over any shoe. Heat proof—puncture proof. One inch thick seasoned wood. Two strong sole leather hinges. Sturdy leather counter-adjustable leather straps. Sizes—Small—Medium—Large.

STRONG STEEL TOE

No. 504-S—Reece All-Purpose Shoe with durable leather uppers, steel toe, Reece "PERFECT ROCKER" Wooden Sole. Safe, reliable, dependable for factories, platers, oil refineries, foundries, steel mills. Also other styles. Sizes—5–13. No half sizes.

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COMPLETE CATALOG

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WOODEN SOLE SHOE CO.

There is no substitute for Reece Wooden soles

SM&P-4 COLUMBUS, NEBRASKA

SAFETY ACHIEVEMENTS

THE Monsanto Chemical Company plants at Nitro, West Va., and Trenton, Mich., have been awarded the company President's Trophies for their safety records of the past year. Monsanto President, Charles Allen Thomas, made the presentations in ceremonies at both locations.

The Nitro plant, which had completed 747 days or approximately 3,313,600 manhours without a lost-time accident, won the award in Group I, which is made up of the company's larger plants.

The Trenton plant received the trophy for smaller plants in Group II. It had completed 706 days, or approximately 1,484,600 manhours without a lost-time accident.

THE La Crosse Division of Northern States Power Company (Wisconsin), combination electric and gas utility in western Wisconsin and eastern Minnesota, completed 626,409 manhours without a lost-time injury from Dec. 10, 1950 to Jan. 23, 1952. A plaque award and ceremony was held for the 300 La Crosse Division employees for their achievement, their first full year or more clear of disabling injuries since 1941.

THE Ingersoll Products Division of the Borg-Warner Corporation of Chicago completed a million manhours without a lost-time accident on Jan. 23, 1952. With the no-accident record still climbing, the employees had worked about four and one half months without a disabling injury.

American Optical Award

WHOLESALE slaughter on the highways was denounced by Ned H. Dearborn, president of the National Safety Council, in presenting the council's top award for industrial safety to American Optical Company.

Pointing out that industry has proved accidents can be prevented, he charged that Americans have been "too busy, too careless and too

THE SURTY MFG CO. INC. 4139 W. KINZIE ST. CHICAGO 24

FOUNDED for SAVING LIFE, LIMB and SIGHT by

(1) Providing Safety for Machines, Point of Operation Lighting, First Aid and Magnifiers also Eliminating Dust Conditions.

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(3) Placing a complete **SAFETY** program under a **MONEY BACK** guarantee of increased output, sufficient to cover the cost annually.

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HOOD "dip process"
assures safer, more flexible GLOVES

Hood's scientific "dip process" precisely controls the amount and viscosity of latex coating on each glove—assures the proper thickness and flexibility needed to make each glove most efficient for the type of work for which it's intended. Hood's experience, equipment, electronic control and "on the job testing" result in uniform and safer industrial gloves.

Hood makes a complete line of industrial rubber gloves to meet every job requirement. Write today for colorful catalog featuring the Hood Glove Guide which shows you "how to choose the RIGHT Glove for EACH job."

hands are vital..protect them with HOOD GLOVES

HOOD RUBBER CO., Watertown, Mass.

indifferent" to put a stop to the traffic slaughter.

He asserted that the national traffic toll could be cut in half within five years if the same care and thought were taken to protect drivers and pedestrians as are taken to protect industrial workers.

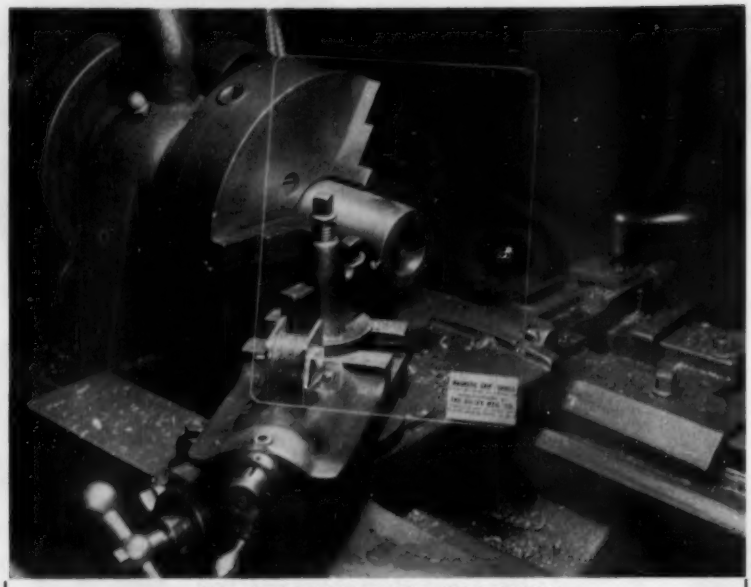
The council's Distinguished Service to Safety Award represents the eleventh safety prize won in the past six years by the company, manufacturers of industrial safety equipment as well as ophthalmic and optical products, which demonstrates that "American Optical practices what it preaches," according to a company spokesman.

Rockefeller Center

(From page 59) as a whole. Safety suggestions from all employees are solicited and all suggestions submitted are given consideration. Due credit is accorded to the employees making the suggestion. Many features and practices now in use have been the result of this procedure. For example, we have mirrors installed at corners to prevent collisions. Improved methods of operation, many types of guards installed on various machines, lights and signs placed at strategic points to improve conditions have resulted from employee suggestions. Their ideas are always acknowledged, although some may be impractical for our use.

One of our strictest rules, and one regularly enforced, is that all accidents, no matter how minor, must be reported to the medical department and to the employee's supervisor. Failure to comply with this rule may result in dismissal. In the supervisor's report pertinent information is noted covering the accident and the conditions under which it occurred. These reports are compiled monthly and broken down by divisions for study.

We use the same care in handling and reporting public accidents. Conditions noted in all accident reports, both of employees and the public, are checked to make sure



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Attract the profits by putting *Magnetism* into your *Safety Program.*

Safety and *Tool* Engineers in the plants of our hosts of satisfied customers know from experience that the *Magnetic Grip-Shield* pays for itself quickly. Just GRIP-IT to any machine.

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For Safety

Guardi-Ann Hat

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Combines utmost protection and style. Exclusive patented features found in no other hat.

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CHIC MAID HAT MFG. CO., Inc.
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that any deficiencies have been corrected.

On the twelve acres comprising Rockefeller Center men and women work and play, earn and spend, give and take. It is our objective to make the Center an ideal place to visit and in which to work by combining the features of comfort, convenience, beauty and safety. All these features are vitally dependent on good maintenance. We hope that the fact that thousands of people do work here and that thousands more make a visit to the Center a "must" item on their every trip to New York is proof that our work has not been entirely without success.

Pictures by courtesy of Rockefeller Center, Inc.

Mechanized Handling

(Continued from page 22)

needed to store it. Extremes in size, weight, or shape must also be considered in laying out space efficiently. Large, awkward and unusually heavy containers should be stored near exit doors. Containers that are difficult to handle should be moved no farther than necessary. The characteristics of the material often supersedes other considerations. Flammables are sometimes stored in special warehouses and are always segregated and placed where hazards are least. Valuables are stored in vaults and certain foods in cold storage.

Rules for Storage

There are a few rules to observe in preparing the best location of merchandise in relation to the physical characteristics of a building:

1. Incoming and outgoing activities should be separated if possible.

2. Layout of traffic aisles should be determined in relation to doors. In planning new construction the two may be considered together.

3. Pillars or posts must also be considered with regard to aisle locations.

4. Floor-load capacities must be observed.

5. Aisle width should be determined in relation to merchandise handling requirements, speed of truck movements, and safety to personnel. One-way traffic is recommended for all except main aisles.

6. Lighting facilities may have to be rearranged.

7. Local fire prevention rules control placement of fire fighting equipment and storage standards.

8. Movement of large quantities of goods, such as car lots, should be made possible without traffic congestion.

9. Storage racks may be desired when quantities of less than normal tiered height are maintained and must be easily accessible at the middle or bottom of a stack.

10. Adequate stack strength can be provided for goods that do not have sufficient strength, or are in low-strength containers, by the use of rack type pallets that support other pallets stacked above on their own structural members.

11. Stacking stability may be improved in some instances for the

safety of personnel and merchandise by providing a means of holding the unit together. A strip of gummed tape around the top layer of light cartons keeps them together and holds the lower cartons in place. Twine, glue, wire or steel strapping are also common means of stabilizing units loads.

Temporary elevated storage on or for production lines is governed by other rules determined by circumstances. Since materials moving through a plant are not packaged, the containers may be bins or racks on skids or pallets. In order to use space vertically such containers may be provided with stacking means, racks may be built or storage balconies provided under which normal production activities may continue unaffected by the overhead storage areas. All of these methods have been used in small as well as large industrial plants.

Picture credits: Pages 20 & 21—Industrial Truck Association; Page 22, top—Yale & Towne Mfg. Co.; bottom—Walter Kidde & Co., Inc.

Plan for Emergency Traffic Control

(Continued from page 55)

Protection or someone whom he designates should attempt to drive through the interceptor lines in a car that is easily distinguished from other traffic. In this way, post guards will not have to interfere with other traffic but can direct only the marked car as they would direct all non-emergency traffic under emergency conditions. The supervisor in the test car would thus be able to check each man to see if he understood thoroughly the way he was to divert traffic at his post during actual interceptor operations. This test car can also discover any "leaks" through which traffic might filter into the emergency area. The time required for all interceptor guards to reach their posts should also be noted.

Personnel: A question may arise as to the use of plant employees for emergency purposes. The Texas City disaster of 1947 was an example of a permanent emergency organization which was made completely inoperative by the very emergency for which the plant members were specially trained. However, the plant layout and nature of industrial processing at most plants permits the establishment of a plant emergency organization to control traffic. At plants where only one or two regular guards are used, additional members must be recruited, trained and deputized from various departments of the plant.

City Emergency Traffic Control: In cities where manufacturing is the main source of livelihood and wealth for the population, it follows that every effort should be made to preserve the advantage of this economic security. A Plant Protective Association should be established composed of representatives from each plant, the police and fire departments and the railroads to draw up a city-wide Traffic Interceptor Control Plan designed to meet emergencies occurring at any or all manufacturing plants.

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CHARLES CHESTER
Safety Shoe PLAN

Our Safety Shoe Plan works like this—with the cooperation of your management group, we will make available to your employees:

1. Our complete line of high quality Charles Chester Air-Cushion Armor Toe Safety Shoes.
2. If desired, we will assign a trained safety shoe fitter to your factory who will fit and take orders for Safety Shoes.
   We can also arrange to send shoes direct to your factory by mail.
3. We will guarantee all Charles Chester Shoes for fit, wear, and comfort. We accept full responsibility for keeping your employees satisfied with safety footwear.
4. We will make prompt shipments of all orders received, from our large In Stock Department.

New Winguard 400 Steel Toe

The New Winguard 400 has the Safety Angle — the special design of the New Winguard 400 gives added toe protection at the base of the shoe . . . which guards against cutting—with greater strength, and at the same time provides for a more comfortable fit with smooth dress shoe styling. Your workers will enjoy the comfort and style of Chester Armor-Toes.

AIR CUSHION INSOLE Arch Supporting

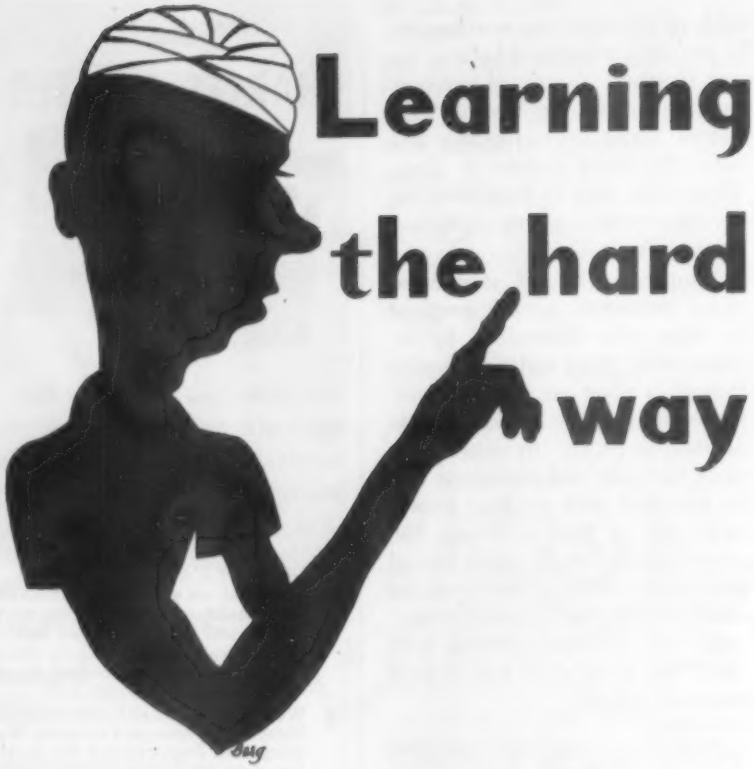
The Patented Air Cushion Innersole gives daylong comfort—Charles Chester builds fine quality and workmanship into all Armor Toe Safety footwear.

Send for Samples at no obligation—sample may be returned at no charge if not completely satisfactory. Please designate style, size and width desired.

Charles CHESTER
AIR CUSHION SHOES

CHARLES CHESTER SHOE COMPANY, BROCKTON, MASS. Fine Bootmakers Since 1876

Learning the hard way



THE UNWATCHED STEP

ONE of the most common accidents is that of slips and falls involving concealed or badly illuminated openings. One organization listed three such accidents in the period of one month. The first case occurred aboard ship when a seaman fell through an uncovered bilge opening in an engine room deck in a poorly illuminated area. Another man stepped over a guard rail, again aboard ship, into an open manhole that had been covered by a piece of black cardboard. The third victim fell into a pipeline ditch in the dark. In all three cases improper guarding as well as inattention were important factors.

NOT-SO-GENTLE BREEZE

NECESSARY as the air hose is in the modern factory, there seems to be something about it that fascinates workers into misusing it, as stories in these colums have testified on several occasions. The latest example is that of a furnace tender who tried to use it for, of all things, first aid treatment! Instead of having a cut in his finger properly treated and covered in the first aid room, he let it go. Later dirt got into the wound and he tried to cleanse the cut with an air hose. As a result, the air impregnated the soft tissue of his hand and arm, causing them to swell, and it was necessary for him to receive medical attention after all.

BEARING ON THE TOES

A MAINTENANCE man was trying to load a large bearing onto a hand truck. Both the bearing and the employee's hands were greasy. Under the circumstances it was really no accident that the bearing slipped through his fingers and landed on his foot, severely lacerating the big toe. He should have wiped the grease from the bearing and his hands before trying to move it. Furthermore, safety toe shoes are in style every year. They would not have prevented the accident, but they would have prevented the injury.

CALLING ALL HANDS

ONE of the basic rules of ladder safety is to use both hands and the rule applies to all types of ladders. In this accident the ladder happened to be one on the side of a hopper car. An employee was trying to descend to the ground, carrying a filled, five-gallon can in one hand. He lost his grip on the ladder rung and gravity did the rest. In this particular case, he suffered only a bruised arm and thigh. Investigation revealed that a line was formerly used to lower the can to the ground, and this was of course the correct procedure. It was supervision's fault that this safe method was not still used.

Accidents Are Symptoms!

(From page 18) conducted with maximum efficiency and if all men worked the same efficient way, there would be no need for accident prevention.

We must not forget that data on accidents is much more complete than information on other occurrences, and also, the element of personal safety and security that is involved in concentrating on personal injuries provides a most effective means of appealing to individuals and influencing them to follow instructions. This same incentive does not exist in an approach strictly from an efficiency point of view.

Safety Reduces Costs

It would seem only logical, therefore, that management should give the question of the administration of accident prevention most serious consideration. If it is a fact, and the evidence indicates that it is, that the causes of accidents and the causes of operating inefficiencies such as delay, damage, interference, down time of equipment and waste in any form are the same, it is evident that for effective control of these causes, we must go far beyond what might be considered the responsibility of a safety director or a safety department. Accident prevention is an activity in which all departments of an organization can participate and with the same objective in view—the reduction of operating costs due to the existence of improper performances or unsafe conditions.

The safety director should act in an advisory capacity to management. He should provide information, counsel, suggest procedures, develop techniques and assist in carrying out certain functions. But the responsibility for actual accomplishment rests with management and its line organization. Accident prevention is a selling job. It's a planning job, an engineering job, a teaching job. It is a job of supervision, a job of research, a job of evaluation. Accident prevention requires decisions, action, policing and enforcement.

These activities touch upon the responsibilities of all department heads and for effective control of accident causes management must establish procedures that will tap these sources of special abilities and require their active interest and acceptance of responsibility.

The data that is available from accident investigation provides invaluable material for engineering research or direct application as respects better employee relations, better employee training, better supervision or better protective maintenance.

(To be continued in the May, 1952 issue of SAFETY MAINTENANCE & PRODUCTION).

3
REASONS WHY
TOP NOTCH
Industrial
FOOTWEAR IS BEST!
BAR-FLEX
Neoprene Oilace Boot shown is available with or without Bar-Flex feature. Neoprene—a special compound that resists oil, grease and acids. Also available, a short black industrial boot with DURATEST Bar-Flex outsole.
Patented outside arch and heel that adds to comfort and gives better traction.
STEELTOE
Workin—6" all rubber work shoe with appearance of a leather shoe, DURATEST non-skid outsole, cushion insole. Steeltoe or plain. Also, a new Pullon work shoe, of similar construction.
Tested to withstand 2000 lbs. pressure! Here is genuine tested protection against toe injuries—the most common foot hazard to a worker!
DURATEST
Red Buddy Mankato—Work rubber with stretchy uppers and special design DURATEST outsole. Available in black. Also, red or black 2 buckle styles, regular or logger heels, and black storm or hicut pattern with gray outsoles.
A new "tougher" rubber compound that gives better resistance to abrasion resulting in longer wear. Tested for extra quality and durability — DURATEST.
BEACON FALLS RUBBER FOOTWEAR
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Won World Fame

Because of Ventilating Feature

Recently we requested our dealers to specify their favorite item among the approximately 300 Sellstrom Eye and Face Safeguards. The overwhelming majority selected the famous No. 420 Welding Goggles.

The world fame of these goggles is based on a positive ventilating feature which, so far as we know, no one else has been able to equal. Here are the facts:

EYE CUP VENTILATION—The side walls of each two-piece eye cup have six ½" patented ventilating ducts, with an extra ventilating duct on each side of the frame—eight in all on each eye cup. This positive ventilation feature furnished more abundant continuous air circulation than any other welding goggle ever brought to our attention. Fogging is reduced to a minimum. Absolutely light-proof. The special lens-retaining rings are both notched and cemented to doubly guard against breakage. Even a cracked lens remains in place.

Because of abundant air circulation, the eye cups and lenses are close to the face and allow the much desired wide vision. These are the features which have made the Sellstrom No. 420 Welding Goggles famous in North, South and Central America, with a steadily increasing demand from Europe, Africa and even the Far East.

FRAME—Moulded completely from rugged plastic. Carefully rounded edges assure comfort. Covered ball-chain bridge permits adjusting to 1/1000th inch for perfect fit on any face. Single adjustment one-piece headband. Weight, including lenses, 3½ ounces.

COMPANION INDUSTRIAL GOGGLES—The No. 421 Industrial Goggles are of the same style and quality but with the highly efficient wire screen vents.

Your Welders Deserve These Superior Goggles

When lenses fog, it slows down work. For this reason it is to your advantage to furnish your welders with Sellstrom No. 420 Welding Goggles and the No. 421 Industrial Goggles.

Order from your dealer or write us direct

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656 N. Aberdeen St., Chicago 22, Ill.

THE Future SHOWS

New York, N. Y.

April 1–4. Twenty-Second Annual Greater New York Safety Convention & Exposition. (Hotels Statler and New Yorker). Walter A. Gustafson, general chairman, Greater New York Safety Council, Inc., 60 E. 42nd St., New York 17, N. Y.

Detroit, Mich.

April 7–10. Twenty-second Annual Michigan Safety Conference. (Hotel Statler) Frederick W. Krupp, Executive Secretary, 174 E. Atwater St., Detroit 26, Mich.

Louisville, Ky.

April 9–10. Seventh Statewide Safety Conference & Exhibit. (Kentucky and Seelbach Hotels). Estel Hack, managing director, Louisville Safety Council, Speed Bldg., Louisville 2, Ky.

Columbus, Ohio

April 15–17. Twenty-second All Ohio Safety Congress & Exhibit. (Deshler-Wallick Hotel) James H. Fluker, Chairman, Div. of Safety & Hygiene, Industrial Commission of Ohio, Columbus 15, Ohio.

Buffalo, N. Y.

April 15–17. Twelfth Western New York Safety Conference & Exhibit (Statler Hotel). W. Wallace Young, Ted A. Clarke, Inc., Erie County Bank Bldg., Buffalo 2, N. Y.

Charleston, W. Va.

April 16–18. Eighteenth Annual West Virginia Safety Conference. (Daniel Boone Hotel). E. G. Volz, General Chairman, c/o Monsanto Chemical Corp., Nitro, W. Va.

Toronto, Ont.

April 21–22. Thirty-Seventh Annual Conference & Exhibit of the Industrial Accident Prevention Associations (Royal York Hotel). R. G. D. Anderson, general manager, Industrial Accident Prevention Associations, 600 Bay St., Toronto 2, Ont.

Fort Wayne, Ind.

April 22–23. Ninth Annual Northeastern Indiana Safety Conference & Exhibit. Ivan A. Martin, Manager, Chamber of Commerce Safety Council, Ft. Wayne 2, Ind.

Des Moines, Iowa

April 22–23. Third Annual Iowa Safety Congress Assembly & Exposition (Hotel Fort Des Moines). Alfred W. Kahl, Chairman, Iowa Safety Congress, 720 Grand Ave., Des Moines, Iowa.

Bridgeport, Conn.

April 23. Seventh Annual Connecticut Industrial Safety Conference. (Hotel Stratfield). A. M. Addison, manager, Connecticut Safety Council, c/o Conn. State Highway Dept., Hartford, Conn.

Asheville, N. C.

May 4–6. Twenty-Second Annual North Carolina Industrial Safety Conference (George Vanderbilt Hotel). H. S. Baucom, Safety Director, North Carolina Industrial Commission, Raleigh, N. C.

Easton, Pa.

May 6. Twenty-fifth Annual Eastern Pennsylvania Safety Conference. (Hotel Easton) Harry C.

Woods. Executive Secretary, Lehigh Valley Safety Council, 602 E. 3rd St., Bethlehem, Pa.

Chicago, Ill.

May 6–8. Twenty-ninth Annual Midwest Safety Show. (Congress Hotel) Joseph F. Stech, Manager, Suite 806, 10 N. Clark St., Chicago 2, Ill.

Baltimore, Md.

May 8–9. Statewide Safety-Health Conference & Exhibit. (Lord Baltimore Hotel) Joseph A. Haller, Executive Chairman Safety Health Conference, State Industrial Accident Commission, Equitable Bldg., Baltimore 2, Md.

Richmond, Va.

May 15–17. Eighteenth Annual Virginia Statewide Safety Conference. (Jefferson Hotel). William M. Myers, executive secretary, Richmond Safety Council, 803½ E. Main St., Richmond 19, Va.

Duluth, Minn.

May 22–23. Twenty-Eighth Annual Lake Superior Mines Safety Council Conference (Hotel Duluth). John A. Johnson, Accident Prevention & Health Div., U. S. Bureau of Mines, 18 Federal Bldg., Duluth, Minn.

St. Louis, Mo.

May 27–29. Central States Safety Conference. (Hotel Jefferson) Reyburn Hoffman, Safety Council of Greater St. Louis, 511 Locust St., St. Louis 1, Mo.

York Harbor, Me.

September 11–12. Twenty-fifth Annual Maine State Safety Conference (Marshall House). A. F. Minchin, secretary, Industrial Safety Div., Dept. of Labor & Industry, Augusta, Me.

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Chicago New York San Francisco Minneapolis Detroit Boston Los Angeles Pittsburgh Seattle St. Louis St. Paul Duluth Indianapolis Portland Superior Cleveland Buffalo Washington Columbus Phoenix Vancouver Toronto Montreal Havana London

Cleveland, Ohio

September 16–18. Fourteenth Annual Ohio State Safety Conference. (Hotel Carter). Carl L. Smith, Secretary-Treasurer, Ohio State Safety Council, 2073 E. 9th St., Cleveland 15, Ohio.

Chicago, Ill.

Oct. 20–24. Fortieth National Safety Congress & Exposition. R. L. Forney, General Secretary, National Safety Council, 425 N. Michigan Ave., Chicago 11, Ill.

For Full Details on the Products and Services Advertised in this Issue, use the Check List —page 84.

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industrial Hygiene

ASSOCIATE EDITOR
JACOB A. GOLDBERG, A.M., Ph.D.

Home Life Is Industrial Health Factor

ATTENTION must be paid to the home surroundings of a worker, his family, where he lives, what he eats and drinks and how he uses his leisure as well as to his environmental control and health supervision at work if the problems of his illness or maladjustment are to be solved. That opinion was expressed by Dr. John W. Cline of San Francisco, president of the American Medical Association. Dr. Cline was the medical profession's speaker at a dinner at the 12th annual Congress on Industrial Health held in Pittsburgh, Pa.

The congress was sponsored by the Council on Industrial Health of the American Medical Association, the Medical Society of the State of Pennsylvania and the Allegheny County Medical Society. I. W. Wilson of Pittsburgh, president of the Aluminum Company of America, spoke for industry. A. J. Hayes of Washington, president of the International Association of Machinists, spoke for labor.

"Given a workable formula for mutual consideration and helpfulness, management, labor and medicine can look forward to rich rewards in the conquest of disease and the promotion of health and human happiness," Dr. Cline said.

He called for a removal of the barriers, wherever they exist, between the physician in industry and the family doctor, and more complete integration of what occurs in the plant dispensary with the related activities of community health agencies.

Speaking of a transition in industrial medicine, he said: "We are passing through a period of intense activity and change, exemplified by the extension of curative medicine into rehabilitation and of prevention into the special medical problems of well people. Medicine in industry deals with adults; it is adult health. Adult health has positive values which I understand have been happily designated 'constructive medicine.'"

Dr. Cline pointed out that in this age of concern over human relations, much emphasis is being placed on ability to live and work amicably together. He added:

"Unfortunately, certain aspects of health are controversial, not at all in its desirability as a universal objective, but rather in our ways of realizing it. In full recognition of this fact, the Council on Industrial Health has on several occasions invited direct participation from labor and management in its efforts to advance industrial health standards and to extend its application.

"Very obviously, we are not going to agree on every point, but there would appear to be so many health goals about which no insurmountable conflict exists that opposing views on other issues should not blind us to the very real advantages of united effort."

Dr. Cline suggested that the channels of communication between management, labor and medicine be broadened and that this could be brought about through the industrial health congresses.

He said the United States has a health record "of which we should be proud—not complacent," but added that accidents and tuberculosis still consume far too many productive years in the younger age groups. He also said that the tremendous gains in life expectancy, now at a record high of nearly 70 years, have created a new set of problems—chronic illness, employment and retirement.

He contrasted the situation with that at the end of the last century when the expectancy was 45, causing the great surgeon Sir William Osler to say that one of his fixed ideas was "the uselessness of men over 60 years of age, and the incalculable benefit it would be in commercial, political and professional life if, as a matter of course, men stopped work at this age."

"Now, obviously, we no longer subscribe to Osler's thesis," Dr. Cline added. "I cite this as a striking example of the need for changes in attitude, even from the thoughtful expressions of one of medicine's great minds."

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KEENER INSTRUMENTS PROBE AIR POLLUTION

Air pollution is receiving increasing attention as a community and industrial problem. Both research and control of contamination require the use of the latest sensitive instruments.

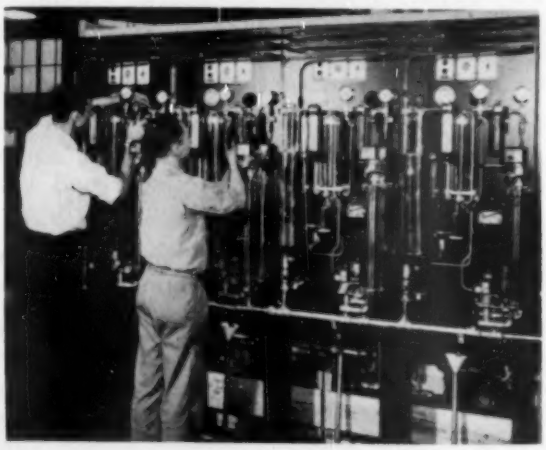
For detailed descriptions of appropriate equipment, see pages 400–419 of "Best's Safety and Maintenance Directory": 1952–53 Edition.

By N. W. HARTZ
Mine Safety Appliances Co.
Pittsburgh, Pa.

THE air pollution problem, once largely limited to mines and to industries where combustible, explosive or toxic gases are produced or utilized, is being recognized more and more as a community problem. Authorities are discovering that established maximum concentrations of such gases, which healthy industrial workers can tolerate up to eight hours a day, are much too high for community atmospheres. This is true because communities nearly always include people who suffer from asthma, pneumonia, tuberculosis, heart conditions and other afflictions, infants, and an old and infirm portion of the population. It is especially true when air may be polluted in various concentrations 24 hours a day the year around.

In view of this growing awareness of atmospheric contamination as a health hazard, the question of methods for accurately measuring low concentrations of potentially harmful gases and dusts arises. What has been done in the field of instrumentation for detecting toxic gas concentrations in air? How effective are presently available instruments? Are they practical, dependable and sensitive enough to serve as protective devices or to warn against very low yet excessive air contamination? If not, can such instruments be developed readily?

It is fair to assume that as the requirements of such instruments are established, instrument makers will provide the tools. Present instruments show great progress in the detection of combustible gases since the



Carbon monoxide recorders for the Holland Tunnel under the Hudson River, New York City, are sensitive enough to detect one part of CO in a million parts of air and give an alarm when the air contains 2.5 parts of CO in 10,000 parts of air.

Davey flame safety lamp, the earliest device for this purpose, and in detectors for numerous toxic gases.

Industry has demanded and obtained more and more sensitive instruments for detecting gases in air in order to protect both workmen and property, and even as an industrial tool. The diversity of uses for gas detecting instruments today is shown by the following widely varying applications in different industries.

Public Utilities

The problem of toxic and explosive contamination of underground facilities in public utility distribution systems probably accounts for the greatest use of portable gas detecting instruments. Marsh gas, oxygen deficiency, fuel gas, gasoline seepage, and sewer gases are hazards that have been encountered.

Another important and common application of protective instruments is in industrial plants where gas is used as a fuel. Approximately five percent of natural gas in air is sufficient to produce an explosive mixture. A number of gas explosions, causing injuries and deaths, have occurred in plants and are still occurring. The smallest of leaks can produce conditions for explosions. For these reasons automatic means of detecting the presence of gases are used in a large number of plants.

Petroleum Industry

As might be expected, oil refineries use combustible gas detecting systems extensively to indicate leakage of gases or vapors and to test the atmospheres of processing or storage vessels before workmen are permitted inside for repair or clean out. Similarly, oil pipe line pumping stations are being guarded by combustible gas alarms. In five diesel-powered pumping stations of the North Products Pipe Line of Shell Oil Company, for example, air samples are drawn through tubing from the space around the seals of the pumps to analyzing instruments 25 feet away. The analyzer automatically gives a red light signal and shuts down the station when vapor concentration reaches 60 percent of the lower explosive limit.

Industrial plants such as rubber goods plants, dry cleaning plants and chemical plants of various types are exposed to similar dangers. The Hunter Packing Company, for example, uses heptane for solvent extraction of grease or tallow from inedible animal material. A multi-point continuous sampling combustible gas alarm is in use there to warn of concentrations of vapors approaching combustible limits. A portable detecting instrument is used also before any major maintenance work including welding or brazing is permitted.

Carbon Monoxide Detection

In coal mines hazardous concentrations of methane may be liberated, and carbon monoxide may be produced from blasting or underground fires. Indicators that give continual quantitative checks on the presence

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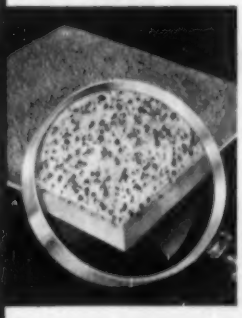

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of both gases are in general use.

Carbon monoxide may also be formed where gas or other fuels are burned. Blast furnace gas and coke oven gas contain high percentages of carbon monoxide. Since continual exposure to an atmosphere containing only a few parts of this gas in 10,000 parts of air is considered hazardous to life, detecting equipment is among the safeguards used against its presence in air.

The general public is protected in all major vehicular tunnels by recording instruments that warn against the presence of excessive carbon monoxide from engine exhausts and by control ventilating fans that reduce it to safe limits. In the Holland Tunnel under the Hudson River, for example, the new instruments are sensitive enough to detect one part of carbon monoxide in a million parts of air. Actually they are set to ring an alarm bell when there are 2.5 parts in 10,000 parts of air. Since guards are stationed in some tunnels for several hours at a time the air they breath must be pure enough for long exposure.

The personnel in a number of bus garages are being protected by carbon monoxide detectors and alarms. Typical are the four new garages of New York City's Board of Transportation Transit System where detecting instruments continually sample and test the atmosphere in return air ducts. If carbon monoxide concentration exceeds 2 parts in 10,000 ventilating fans are started automatically. The system not only protects workmen but minimizes the amount of heat required for comfortable working conditions. Flexibility in ventilation is provided by the use of two-speed supply fans, exhaust fans, and dampers in air ducts.

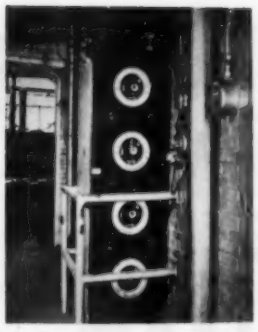
Since bad atmospheric conditions have occurred in industrial communities, particularly in Donora, Pa., the U. S. Public Health Service and the State of Pennsylvania have used the most modern instruments for investigation of the community atmosphere. Pennsylvania has placed in service a mobile laboratory to study air pollution hazards in industrial centers of the state.

Evolution of Instruments

Because such problems have long been common to many industries, a variety of both portable and permanently mounted instruments are now available for detecting the various toxic and combustible gases, and for collecting dusts for analysis. They evolved gradually from instruments originally based on various elementary physical and chemical phenomena, which give semi-qualitative results, and then on electrical principles which have given the precise yet simple devices that are now in common use.

The first common detector of hazardous concentrations of combustible gases was the flame safety lamp, a gauze-bonneted naphtha-burning lamp. Combustible gases in the air surrounding this lamp would cause elongation of the flame up to the lower explosive limit concentration above which an explosion, confined by

The explosion meter is a convenient and portable instrument for checking the combustible gas content of any atmosphere. Utility companies find it a simple and economical means of detecting gas leaks underneath streets.



"Mechanical noses" sample the atmosphere continuously at four locations around two 20,000-gallon storage tanks in the synthetic rubber plant of The Goodyear Tire & Rubber Co., Akron, to detect dangerous amounts of butadiene.

the gauze, would blow out the flame. The lowest concentration of combustibles that an ordinary user could detect with this lamp was only about 40 percent of the lower explosive limit. The gauzes were safe flame arresters only in the presence of natural gas or methane.

Later, an ignition test incorporating a means for trapping a sample of the atmosphere in an explosion chamber equipped with a spark plug was developed. If no explosion occurred, propane was added in increments equivalent to 25 percent of the lower explosive limit. After each such addition attempts were made to explode the enriched sample until a pressure gage indicated a detonation. By this test combustible concentrations of various gases and vapors could be determined to the nearest 25 percent of the lower explosive limit.

This instrument was followed by a gas detector which consisted of a means for trapping a sample of air in a chamber sealed with water and connected to a transparent manometer tube. Combustibles in a sample were ignited by a platinum glower heated electrically by a portable storage battery. The resulting change in volume, after cooling, was measured on a graduated scale affixed to the manometer and calibrated in percentage of the lower explosive limit for the specific gas under test.

About the same time a continuous combustible gas indicator became available. In this instrument, sample air was passed over a heated element in which the cold junction of a thermocouple was imbedded, then over a similar heated element coated with a platinum catalyst and containing the hot junction of the thermocouple. Combustibles in the sample burned on the catalytic surface of the second element and caused its temperature to increase. The temperature difference was read on a millivoltmeter graduated in percentage of the lower explosive limit of the product for which the instrument had been calibrated.

An important consequence of this development was the discovery that the heat of combustion of most hydrocarbons at the lower explosive limit concentration

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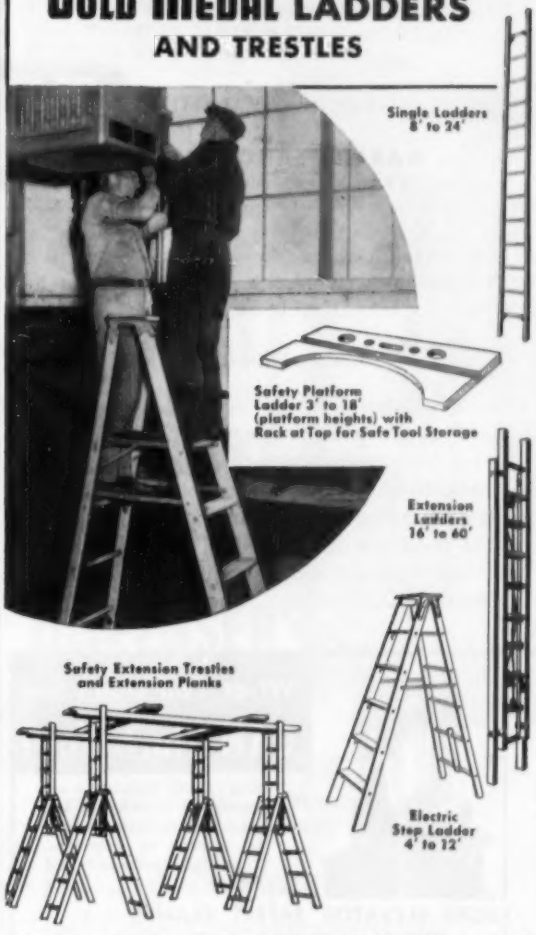
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was approximately the same. This fact provided the basis for the "general purpose" combustible gas indicators that are now in wide use.

Modern Instruments

Present combustible gas instruments have been simplified to the point where they consist essentially of an electrically heated catalytic filament which ignites any combustibles present in a sample of air, thus raising the temperature of the filament and increasing its electrical resistance in proportion to the percentage of the lower explosive limit concentration. This change of resistance is measured by a Wheatstone bridge circuit of which the filament is a part. Portable instruments of this type are powered by flashlight dry cells. Permanently mounted continuously operating instruments may be operated from common lighting circuits.

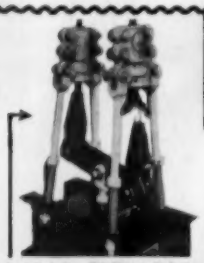
The detection of carbon monoxide evolved from the relatively insensitive and frequently unreliable canaries and mice, through the stage of simple colorimetric devices, to practical, continuous operating alarms, indicators, and recorders. Present instruments are activated by cells of a catalyst that promotes oxidation of carbon monoxide to carbon dioxide. The resulting temperature rise is measured by means of a differential thermopile connected to an indicating or contact-making meter.

With spectographic types of analyzers it is now possible in the laboratory to measure minute concentrations of certain atmospheric contaminants. Conductivity cells offer another means of detecting minute amounts of gaseous contaminants in the air.

An important and relatively new device for collecting dusts, fumes and smokes for weighing or chemical analysis is a portable electrostatic sampler. This instrument electrically charges all air-borne particles entering the electric field and then attracts them to the inside walls of a long metal tube which acts as an electrode. Such instruments were used by U. S. Public Health Service teams investigating the causes of the Donora "smog" tragedy. They also are used in the Commonwealth of Pennsylvania's mobile laboratory for air pollution surveys.

Such new developments will become of increasing importance as greater attention is devoted to the problem of general atmospheric contamination by industrial plants, and the need for instruments of even greater sensitivity is recognized for indicating, recording or automatically controlling the atmospheric conditions.

Pictures by courtesy of Mine Safety Appliances Co.



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Keep Posted on:
WHAT'S NEW—Page 80

Chapters of Air Pollution Manual Available to Date

THREE new chapters of the Air Pollution Abatement Manual, a project of the Manufacturing Chemists' Association, Inc., will be issued shortly. Chapter 4 on Legislative Requirements, Chapter 6 on Sampling Procedures and Measuring Equipment and Chapter 12, the Bibliography, were scheduled for publication in April.

Five of the projected 12 chapters have appeared to date. They are: Chapter 1 (Manual Sheet P-2), Introduction, July 1951, 25 cents; Chapter 3 (Manual Sheet P-4), Community Relations, July 1951, 25 cents; Chapter 9 (Manual Sheet P-10), Dust and Mist Collection, November 1951, 60 cents; Chapter 7 (Manual Sheet P-8), Analytical Methods, December 1951, 35 cents; and Chapter 5 (Manual Sheet P-6), Physiological Effects, December 1951, 60 cents. Manual P-1, Preface and Outline, is now available at 15 cents.

The most recent publication, Chapter 5, includes a listing of maximum allowable concentrations in the atmosphere for 144 different chemical substances. The author, Dr. E. M. Adams of The Dow Chemical Company, states that these have been effective in preventing harmful exposures of workmen within the plant, but should not be applied to general air pollution problems except when the duration and frequency of exposures are appropriate.

Other M.C.A. publications include manuals on container handling and unloading, and safety data sheets relating to the properties, handling and health hazards of individual chemicals. A price list will be sent on request. Remittance should accompany any orders addressed to Manufacturing Chemists' Association, Inc., Woodward Building, 15th and H Streets, Washington 5, D. C.

Humidity Booklet

"METHODS of Measuring Humidity and Testing Hygrometers," by Arnold Wexler and W. G. Brombacher, is a National Bureau of Standards Circular 512, and is available for 15 cents from Government Printing Office, Washington 25, D. C.

For some applications there exists at present no satisfactory method for the measurement of the relative or absolute humidity of gases, and available information on methods and instruments for measuring humidity is scattered. In the text and in the appended references this circular answers comprehensively a large number of questions on humidity measurement.

The paper reviews methods for measuring water-vapor content of air and other gases and for producing and controlling atmospheres of known humidity for hygrometer testing and calibration and for general research. It discusses such hygrometric techniques as

(Continued on page 78)

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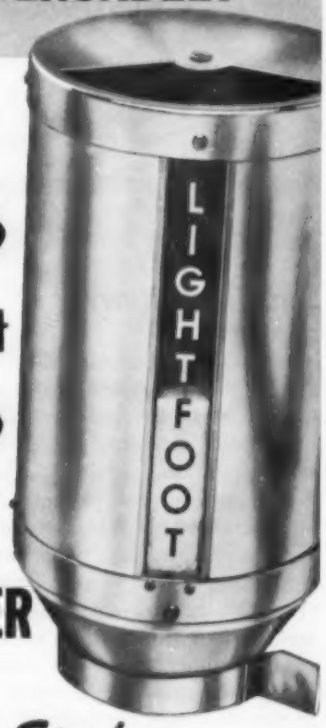

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THE INDUSTRIAL Nurse

EDITOR

ROSAMOND J. WEBSTER, R.N., A.M., Ph.D.

Something New?

RECENT discussion with a recognized authority in the field of physiotherapy as to new developments brought forth the comment that supersonic or ultrasonic waves are being introduced in the treatment of various physical disabilities. The results have been unusually good in some patients. A report from Germany last month stated that successful treatment had been achieved for lumbago, rheumatism, sciatica, and similar conditions, as well as mild forms of arthritis, by sound vibrations beyond the range of human hearing. It appears that this method of treatment is only being used experimentally in this country at the present time, though the principles involved were outlined in 1927 by two American physicians.

The human ear perceives the vibrations of about 20,000 vibrations a second, and some animals at a much higher pitch, but the sound waves generated for therapeutic purposes are at a frequency of 1,000,000 vibrations a second. These ultrasound waves are concentrated in a beam by a mechanical device and directed at the sources of pain.

Use in Germany

The report from Germany states that an estimate has been made indicating that 15 percent of German practicing physicians use ultrasound devices for the treatment of rheumatic diseases. About 20 to 30 percent of the major clinical institutes are using them.

The use of this method seemingly produces an improvement in the blood and lymph supply, much more than could be expected through the application of heat alone. The danger in the use of the treatment is said to rest in overtreatment. Much has been achieved through the use of various electrical devices, as in diathermy. This additional method may in the long run throw a further burden on the industrial medical department if treatment is a part of the service rendered to employees. But, eventually, one can readily foresee the many benefits to be gained.

Wonder Drugs

THE possibility of new discoveries of what have been called "wonder drugs" seems brighter than ever before. It was but a few years ago that the sulfonamides made their appearance. Not long thereafter came penicillin and other products belonging to the same group and the end is fortunately not yet in sight.

Accidents, injuries, operations, infections, diseases—all these are yielding to the application of these products. Mastoid operations are becoming a thing of the past. The venereal diseases are yielding nation-wide their high place as causes of much suffering and disability. Pneumonia is no longer the same dread affliction that it was but a few years ago.

In this country and abroad many conditions affecting the human organism are being attacked with much scientific insight and knowledge not least among them is tuberculosis which still stands high as a killer and disabler of unnumbered thousands the world over. Streptomycin has been used with varying success in tackling tuberculosis in its various forms and stages. Thus, before the advent of this new product, tuberculosis meningitis was about 100 percent fatal. This has now been reduced to 50 percent. Military tuberculosis also was 100 percent fatal, and has likewise been reduced to about one-half.

Now comes a startling statement that certain coal-tar products give promise of being specifics against this age-old and world-wide disease. Extensive research by two of this country's large drug houses have reported the preparation of these products. If reports already issued bear out the hopes and possibilities, tuberculosis may come under extensive control in a comparatively few years.

The task of finding the unknown cases, however, will still rest with physicians in private, public health and industrial practice.

What's New?—See page 80

DEPENDABLE DRESSINGS

for FIRST AID, for EMERGENCY
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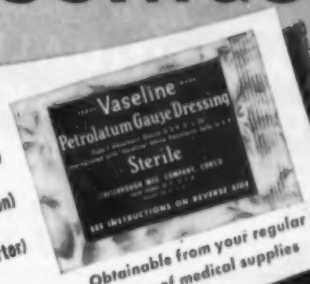

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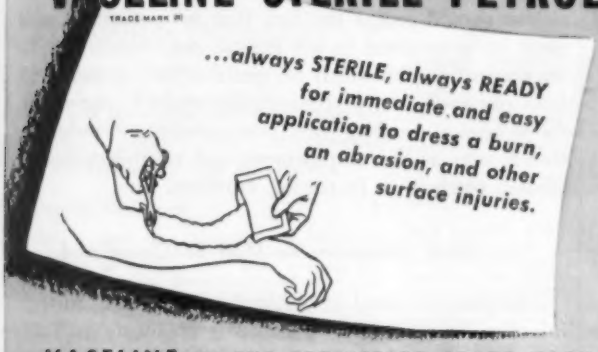

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have been adopted by surgeons as standard procedure, by nurses as preferred matériel, by professionally-trained aid personnel as the compact, ready-made, ready-to-apply dressing of their choice.

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Influenza

THIS appears to be a winter season in which many are or have been afflicted with an attack of influenza, which is an acute infectious respiratory disease. It is of epidemic nature, of variable extent and severity. The disease is further characterized by rapid dissemination, high morbidity, sudden onset with fever, chills, leukopenia (abnormal decrease of white blood cells) and inconstant bronchitis or pneumonitis. The mortality from the disease is low as a rule, and recovery is fairly prompt. In most instances the temperature returns to normal within three or four days. Convalescence is prolonged and weakness may persist for weeks or even months. This is a factor which should be given due recognition by industrial nurses.

Evidence of weakness, apathy, low production, tiredness, and other manifestations need to be properly appraised in the case of those workers who have been away from work with a "severe cold," "grippe," or "influenza." The diagnosis is sometimes indefinite because many workers may not consult a physician and reach their decisions as to diagnosis without such technical assistance.

Many studies have been made of the causative agent or virus of influenza. Since the discovery of the virus causing this condition 19 years ago, only two distinct immunologic types (A and B) have been identified, with but slight variation between them.

According to an editorial in the *Journal of the American Medical Association* in the issue of February 16, 1952, vaccines with broad antigenic coverage will not solve the problem of influenza prophylaxis completely. Methods must still be found to enhance the degree and duration of the immunity produced by the inactivated virus. Vaccination as currently practiced does not provide complete protection for all persons and the immunity produced lasts only a few months.

Psychosomatic Problems

THE term psychosomatic has come into fairly general use among professional men and women. Even laymen are now commonly using the term to describe various complaints. Now there appears to be a reversal in some concepts of the term. So much so, that a medical journal calls it an unnecessary term and one that should be dropped from current medical literature. It is accepted that emotional factors may cause disturbances in bodily function and that the intensity of emotional trauma may be modified by personality. However, it is held that no convincing evidence exists to prove that psychosomatic groups of diseases may be acquired by virtue of a specific person-

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ality. Nor is there any convincing evidence that emotional stress initiates a disease process, although it undoubtedly aggravates an existing one. There is a possibility that in a small number of individuals intense emotional disturbances might lead to physical change, such as an acute gastric ulcer causing hemorrhage. Instead of regarding emotional tension as a major causative factor in its own right, it may be best regarded as an aggravating factor in the same category, as, for example, fatigue or oversmoking. It is well known that nervous tension may exact a profound effect on the endocrine system, and it would be remarkable if directly or indirectly it should not modify an existing disease process. Psychosomatic medicine is being considered as essentially not a specialty but a point of view, and an approach which applies equally to medicine and to surgery. The best physicians and surgeons have long regarded their patients as individuals with backgrounds which may influence their illnesses. There is general agreement that many patients benefit merely from the taking of a detailed history at leisure and in privacy, plus the unburdening of their troubles. But, some are coming to believe that the term "psychosomatic" has been over-used, over-emphasized and misunderstood. Perhaps greater care in labelling those who complain and others who are really ill may meet the situtation.

Industry and Heart Disease

OUR aging population is a matter of congratulation in many respects. Higher incomes, accident prevention, good nutrition, control of communicable diseases, a wide dispersion of hospitals, clinics, physicians, nurses—all of these have contributed to the prolongation of life. But some problems have followed in the wake of these desirable human gains in the life span.

One of these is the increase in cardiovascular diseases. A well-known industrial physician has summarized current concepts in relation to industry and heart disease. He has stated that (1) heart disease is a large and growing medical and economic problem; (2) physicians should accept the fact that no patient is well until he is returned to his regular employment or to an occupation for which he qualifies and is prepared both physically and psychologically; and (3) the medical profession, working with these patients and industry, should aim at the employment and rehabilitation of cardiac patients in increasing numbers.

Individual Circumstances Must Be Considered

The problem faced in industry of preventing further injury to hearts already damaged is obviously an individual one for which few general rules can be given. There are many instances of well-compensated heart disease in which the patients can perform the less strenuous types of work safely and satisfactorily. This applies to the milder forms of rheumatic heart disease such as uncomplicated aortic insufficiency, mitral insufficiency, and the milder degrees of mitral stenosis.

A certain proportion of persons who have had a single attack of coronary occlusion make a fine recovery. For a few years they may be able to continue at fairly active work. Sooner or later a second attack is almost certain to occur from which a satisfactory recovery is much less likely.

Humidity Booklet

(Continued from page 75)

psychrometry, mechanical hygrometry, dewpoint measurement, electric hygrometry, gravimetric hygrometry, thermal conductivity, index of refraction, pressure and volume measurements, and dielectric constant.

In addition, the circular describes suitable equipment for establishing desired humidities over a wide range of temperature. A list of 157 selected references pertaining to hygrometry is included.

Foreign remittances must be in U. S. exchange and should include an additional one-third the publication price to cover mailing costs.

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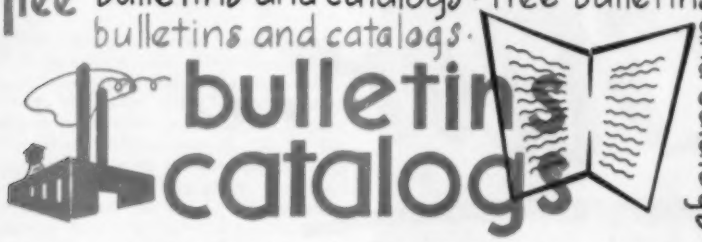

As a convenience to executives, the new publications of manufacturers are offered by the Reader Service Department of SAFETY MAINTENANCE & PRODUCTION. The catalogs, data sheets and technical bulletins reviewed here present the latest information on protective and maintenance products and equipment. Use the Reader's Inquiry Coupon.

PERSONAL PROTECTION

Hy-Test Safety Shoes 1

Hy-Test Div., International Shoe Co. Fifty-seven varieties of safety shoes, each one illustrated, are described in a new 8-page folder. Included are both men's and women's shoes in work, dress and high-cut styles. Full details on construction, sole material and sizes are given for each type.

Industrial Dermatitis 2

John H. Breck Inc. The problem of preventing dermatitis among workers is covered in this 4-page "S M & P" reprint. While stressing the importance of using protective hand creams when handling irritating substances, the folder also recommends the use of a mild skin cleanser and an after-work cream to prevent drying of the skin. Details are given on water-resistant and oil-resistant creams, hand cleaner and an emolliant cream.

Respirators 3

H. S. Cover Co. "Respirators & Gas-Tight Goggles" is the name of a 12-page catalog which describes and illustrates several types of dust-filtering respirators, many with Bureau of Mines approval. They range from ones suitable for nuisance dusts to those for toxic or pneumoconiosis-producing dusts. Also shown are nose masks, smoke respirators and fog-proof gas-tight goggles.

Work Gloves 4

Richmond Glove Corp. This 8-page illustrated catalog offers complete information on 45 types of work gloves, including leather palm, all leather, canton flannel and Jersey. A special feature of the catalog is a handy selector chart with which one can: select the type of service, select the desired features, and select the cuff-type desired.

Anti-Fog Liquid 5

Carol Chemical Products Corp. Emphasizing the need for using No-Mist for safety, efficiency and comfort, this 4-page folder gives full details on this anti-fogging and lens cleaning solution for goggles, glasses, shields and hoods. Describing the product's uses and effectiveness, the bulletin also offers information on prices and the spray pumps for use on either glass or plastic bottles of the liquid.

Lehigh Safety Shoes 6

Lehigh Safety Shoe Co. This illustrated catalog of all types of safety toe shoes also includes details on the distinctive construction features of the line and the various types of safety soles available. Both work and dress types of safety shoes are shown, and one section offers safety-toe rubber boots and shoes. Information is also given on Lehigh aids to a safety shoe program such as posters, pay envelope stuffers, etc.

Acid Safety Goggle 7

U. S. Safety Service Co. This attractive bulletin describes and illustrates a new all-plastic goggle for chemical and acid workers. With a unique yellow frame to immediately distinguish it from other types of goggles, the unit has a replaceable lens made of a special acid-resistant plastic. The bulletin includes prices on this light weight, comfortable unit.

FIRST AID

Demand Oxygen Unit 8

Mine Safety Appliances Co. This bulletin describes in full detail the many features of this new demand oxygen unit, which is simple in operation, automatically and economically administering oxygen as the patient requires it. It is a completely self-contained portable assembly and requiring no auxiliary parts or fittings for use. The bulletin gives complete assembly details and directions for operation of the unit in emergency respiration work.

First Aid Kits & Refills 9

Pac-Kit Co. The convenience and economy of the unit-type system of first aid equipment are emphasized in this illustrated folder. Individual applications and dressings for each injury are separately packaged. The folder outlines the contents of various sizes of kits and tells what types of industries, organizations or vehicles they are suitable for.

FIRE PREVENTION

Drum-Venting Safety Valve 10

Central Safety Equipment Co. A new catalog sheet is available on the Vent-A-Drum safety valve that eliminates fuel explosions in standard metal containers by controlling pressure changes. The sheet includes a list of industries where the valve is applicable and describes clearly the six functions of the unit in preventing fires.

Stable Solvents 11

Fine Organics, Inc. This 4-page "S M & P" reprint of a magazine article gives full details on the new line of degreasing and cleaning solvents that have low toxicity and flammability. The unique feature of these safety solvents is that they remain stable and thus retain their safety features throughout their use.

Magnetic Separators for the Paper Industry 12

Eriez Mfg. Co. A new 4-page well illustrated bulletin describes the uses of permanent, non-electric, magnetic separators for removing tramp iron in the processing lines of the paper industry. Included are construction and application data on five special types of equipment, information on how to select the proper kind of separator, and a flow chart showing where separators can be used in the paper industry.

MATERIALS HANDLING

Trucks, Tractors & Safety 13

Clark Equipment Co. A well illustrated booklet contains charts, diagrams and plans which are offered as an aid in eliminating costly production and shipping bottlenecks arising from improper materials handling procedure and equipment. In addition to offering suggestions on the correct equipment to be used for specific requirements, this booklet also points out the many safety factors that must be considered when analyzing and planning materials handling procedures.

Palletized Tote Boxes 14

American Box Co. "Stacks Up Better for Less" is the meaningful title of an illustrated 4-page bulletin that features wirebound palletized tote boxes. Complete details of important construction details are given, as well as several specific applications. These shipping and storing crates have pallet type bottoms for handling by fork trucks.

4-Purpose Attachment for Fork Truck 15

Baker-Raulang Co. An interesting illustrated bulletin describes a new fork-truck attachment that permits: standard fork use, clamp action, fork spacing for different load widths, and side shifter action. Photos and drawings show how two simple adjustments, without tools, change the carriage for its various functions.

Wire Rope Fittings 16

Macwhyte Co. A new 22-page catalog illustrates and gives detailed specifications for wire rope with fittings permanently attached, as used for operating controls, slings and hoists on small gasoline powered equipment, mining and agricultural machines, production and laboratory equipment, etc.

Motorized Hand Trucks 17

Yale & Towne Mfg. Co. A new 16-page bulletin describes the application, types and operation features of this line of powered hand trucks and electric stackers, for use where high maneuverability is desired. A special section shows the various attachments that permit the handling of a wide range of objects without pallets.

FLOOR MAINTENANCE

Colored Seal for Floors 18

Consolidated Chemicals Laboratories, Inc. This 2-page bulletin describes Perma-Color-Seal, a protective finish coating for concrete, wood and composition floors. Not a paint, the sealer is designed to penetrate into the surface and seal it against moisture, stains or oil. The bulletin includes color samples of the eight shades, in addition to black and white, in which the product is available.

WIRE CLOTH PRODUCTS

Metal Filter Cloth 19

Multi-Metal Wire Cloth Co. This new 125-page catalog contains full listings of wire cloth, filter cloth and fabricated products, and includes engineering, research, and technical data sections. One of the features is a report on the flow characteristics and particle retentivity of metallic filter cloths.

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April, 1952

What's New...

A coupon is provided at the end of this section for your convenience in obtaining illustrated descriptive literature of products listed here. *Send the coupon or written request to:* Service Dept., SAFETY MAINTENANCE & PRODUCTION

IMPROVED SAFETY HAMMER

A NEW and improved type of construction within the hammer head has just been announced by the Custanite Corp., of New York. Using an entirely new principle, "Controlled Compression," the "*Flex-Flo*" construction (patent pending) consists of a malleable metal hammer having hollow chambers, the inner walls of which are corrugated. Under continuous heavy pounding, the opposing angles of these corrugations slowly approximate each other at a predetermined rate, thus retarding the compression of the malleable hammer head, and preventing mushrooming.

The safety hammer is made of a special analytically controlled non-ferrous copper-base alloy. It won't spark, chip or flake and has a high degree of tensility. Since no metal is lost, the hammer retains its original balance and weight. According to the manufacturer, comparative tests show that the Custanite Safety Hammer will outlast ordinary soft hammers made of rawhide, plastic, rubber or metal up to 12 times or more.

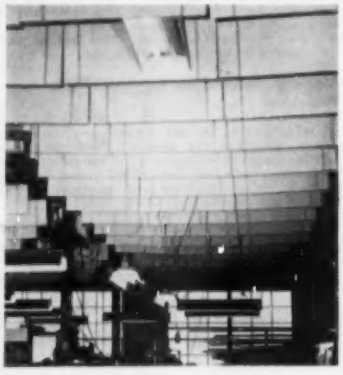
The hammer is available in six convenient weights and sizes: ¾ lbs., 1½lbs., 2¼ lbs., 3 lbs., 4½ lbs. and 6 lbs. Additional information can be obtained by sending in the coupon.

SOUND INSULATION BAFFLES

NEW Fiberglas acoustical baffles, designed to reduce the loudness of factory and shop noises, have been developed by Owens-Corning Fiberglas Corporation. Easily and economically installed, the new product consists of a rigid panel of Fiberglas PF insulation, measuring 24 by 48 inches, one-and-a-half inches thick, completely enclosed in a printed plastic film.

Although designed chiefly for use in reducing the intensity of disturbing noises in such high noise level areas as factories and machine shops, the baffles also may be used in offices, cafeterias and other rooms requiring noise reduction.

The baffles are expected to be used widely in areas where the cost of installing standard types of acoustical ceilings would be prohibitive because of ceiling obstructions often found in plants and shops, such as chain hoists, steam lines, heating ducts, large lighting fixtures, sprinkler systems and skylights. Fiberglas acoustical baffles are hung from wires strung horizontally at the desired height. Installation generally is made by stringing



wire at predetermined spacings to run the length of the room. Pressure-sensitive tape secures a short length of tying wire to an edge of each baffle. The tape is lapped over the wire to give strength of two thicknesses. The end of the tape is stapled to itself to prevent slipping. Then the baffle is hung, with the tying wire looped and twisted around the overhead wire. For details, send in the coupon.

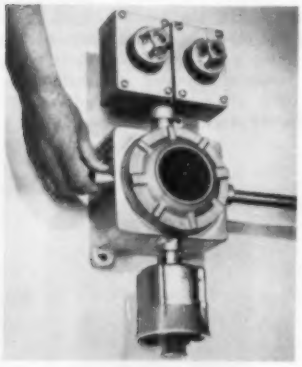
SPACE SAVER LOCKERBASKET

MORE efficient use of space, more light, better ventilation and economy of installation are the outstanding features of the Moore Overhead Lockerbasket. This method of overhead storage of personal effects has been designed for use in industry, gymnasiums, shops, schools, recreation centers, beach houses or wherever people need a safe method of storing clothes.

The Lockerbasket was designed after extensive studies. It is sturdy, rust resistant, will not tip, and has over 1200 cubic inches of unobstructed basket space for storage of shoes, hat, packages, and other articles. Garments are suspended back to back on hooks, thus allowing free circulation of air, and preventing contact with clothes of adjoining baskets. The hooks have this unusual feature: as part of the hanger itself, they are connected with eye bolts to the basket. The basket slides up and down on the long shanks. Thus, clothes suspended from the hooks will not slip off nor can they be knocked off since the weight of the basket and its contents hold them securely in place. In addition to these exclusive features, the Moore Lockerbasket complies with all state laws and recommendations of the U. S. government. For details send in the coupon.

SAFETY COATING FOR LIGHT BULBS

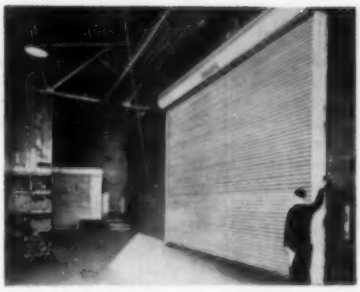
THE danger of glass particles from broken light bulbs scattering and injuring employees can be eliminated by coating the bulbs with Tecogel, a clear lacquer-type, anti-fragmentation coating. A product of Thompson & Co., of Pa., the coating, tested successfully for over a year in meat packing plants, is applied by hot-dipping. It sets in two to three minutes, and dries hard in two to three hours. For best results, the manufacturer recommends that the coated bulbs be allowed to dry for four or five hours before being put into service. Additional details are available by sending in coupon.



COMBUSTIBLE GAS ALARM

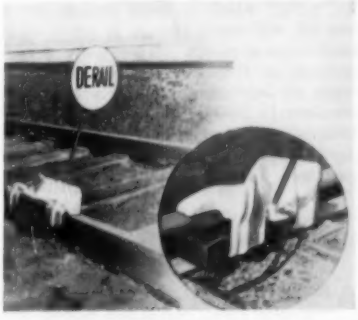
BECAUSE of its completely explosion-proof construction, the new Johnson-Williams Model EE Combustible Gas Alarm can be installed directly in the suspected atmosphere, either indoors or out. Located in a bell-shaped cover housing (at bottom in the illustration), the sensing unit is weather-proof like all parts of the unit. By convection and diffusion, the surrounding atmosphere is subjected to a continuous watch against the build-up of any kind of explosive vapors. Presence of such vapor is signalled by a bright red indicator light as well as by remote alarm units of various types which can be connected to the terminals provided. While the standard alarm point is established at 0.2 of the lower explosive limit, other values can be provided where required. Either self-reset or lock-in arrangements can be provided to give a choice between an on-off indication of gas, or one which must be manually reset. The sensing unit can be located remotely from the rest of the alarm if desired.

Completely a-c operated, it is designed for rough-service locations. It utilizes an electronic trigger-tube circuit to convert the sensing-unit signals into alarm indications. The electronic chassis is arranged for easy removal so it can be replaced and conveniently shop serviced. Stand-by power consumption from the 115 volt line is 15 watts. For details and application send in the coupon.



LOOKOUT WINDOWS FOR ROLLING DOORS

AN INNOVATION in metal rolling doors said to provide a "new look" for commercial and industrial applications while retaining the sound basic construction of this type of door, has been announced by The Kinnear Manufacturing Company, of Ohio. Narrow, transparent panes of heavy-duty plastic are now available in one or more of the interlocking steel slats of these Kinnear Doors that coil upward above the lintel. This window provision in the door closure offers new benefits applicable to many different sites where more interior light is required or vision to the outside is desirable. This addition of lookout panes in the door slats provides a safety factor against accidents and intruders. Since the door operator can view visitors before raising the doors, warehouses and similar buildings can be protected from access by unauthorized persons. Daylight entering the building through the lookout windows helps to prevent accidents to personnel moving about in doorway areas that otherwise might be dark.



PORTABLE DERAIL UNIT

AVAILABILITY of a portable derail unit for temporary derailing service and safety is announced by The Nolan Company of Ohio. The Nolan Derail is recommended for use wherever workers may be endangered by wild cars, switching cars, or uncontrolled and unsuspected car movements in rail yards, spurs, etc. This derail is particularly adapted to mine use as protection at room necks, entries.

Derailment is accomplished in either direction, on right or left hand rail. No spiking is necessary as a wedge construction securely locks the derails to the rail. Each derail is complete with flag. Full details and prices can be secured by sending in the coupon.

INDUSTRIAL GLOVES

THE Seiberling Latex Products Co., of Ohio, introduces a line of natural rubber and neoprene latex industrial gloves as a direct aid in preventing production losses, damage claims and absenteeism.

One of the many new features incorporated in this complete line of protective gloves is the embossed "FIRM-GRIP" surface on all five fingers and palm. This innovation provides a non-slip surface that prevents slippage when handling wet objects. In addition to this remarkable feature the gloves are impregnable to practically all acids and caustics, and highly resistant to oils.

For a general usage industrial glove, the Seiberling Co. is offering a steam-cured natural rubber glove designed to give exceptional toughness, durability and long life. Such points of wear and stress as the fingers, thumb crotch and palm are reinforced with heavy gauge non-slip patches for long wear and economy. Additional details may be obtained by sending in the coupon.

ARC WELDING HELMET

THE Jackson Products, of Michigan, announces a radically new type of welding helmet. The shell is molded in one piece, under high compression, of laminated fabric, phenolic impregnated. It is claimed that this thermosetting material, by being more resistant to high heat, and much less moisture absorbent, will hold its shape better than the commonly used vulcanized fiber. It is said to be strong, smooth, easy to clean, and far more attractive in appearance.

Cover glass is replaced from the outside with no other parts to come loose, filter lens from the inside; no tools are needed. All helmets are checked for light leakage under strong light.

Headgear is of smooth plastic, readily adjusted (and held firmly) to any head size. A cork-padded sweatband is held by snap buttons. The shell is easily raised and lowered on manually adjustable friction pivots, yet held firmly in any desired position. For additional information please send in the coupon.

NON-CORROSIVE EXTINGUISHER

THE General Detroit and the General Pacific Corporations announce a one-quart vaporizing liquid fire extinguisher that will remain free from corrosion. The problem of corrosion has been defeated by the use of a corrosion arrester exclusively featured in General Quick Air Fire Guards. The patented sure-action corrosion arrestor is a definite part of the pump which purifies the liquid and eliminates corrosion. Approved by the Underwriters' Laboratories, it meets requirements of Board of Railway Commissioners and Inter-State Commerce Commission for use on motor trucks, trains and buses. Ideal for on the spot protection in factories, farms and homes for fighting gasoline, oil and electrical fires. Underwriters' rating B-2, C-2. For details, send in the coupon.

April, 1952

To Safety Maintenance & Production

75 Fulton St., New York 38, N. Y.

For prices and complete details of items mentioned in this month's "What's New in Safety Products," check items that interest you and mail coupon.

- ☐ Improved Safety Hammer
- ☐ Sound Insulation Baffles
- ☐ Space Saver Lockerbasket
- ☐ Safety Coating for Light Bulbs
- ☐ Combustible Gas Alarm
- ☐ Lookout Windows for Rolling Doors
- ☐ Portable Derail Unit
- ☐ Industrial Gloves
- ☐ Arc Welding Helmet
- ☐ Non-Corrosive Extinguisher
- ☐ Electric Paint Remover
- ☐ 3-Way Floor Cleaner
- ☐ Fluorescent Lamp Lock

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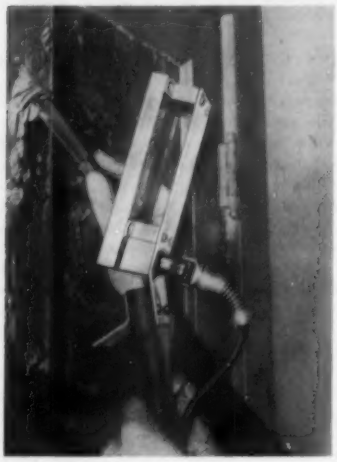
City .....

ELECTRIC PAINT REMOVER

A NEW, improved and completely safe electrical device for the removal of paint, wallpaper or putty, or which can be used in place of a blowtorch in laying linoleum and asphalt tile is now being manufactured by the B & L Tool and Machine Co. of Conn. Usable anywhere, indoors or out, by the amateur or professional, it operates equally well on flat, curved or irregular surfaces as on boats or mouldings. Weighing less than 2 pounds, including the cord, it is as easy



and handy to use as a flat-iron.

On flat surface exteriors, paint can be removed at the rate of about 2 square feet per minute. Localized removal of paint is possible without affecting surrounding paint. The heated area measures 3½" x 5¾" which is large enough for a fast job and small enough to reach most hard-to-get-at-places. The unit, which operates on 110–120V A.C. or D.C., will reach an operating temperature of approximately 1000°F in 3 minutes. Completely guaranteed, it will be repaired or replaced free of charge within one year of purchase. For details, send in the coupon.

daily waxing of floors is impractical.

Non-abrasive and non-flammable, it has demonstrated an unusual ability for easily removing rubber burns, marks left by composition heels and soles, old, encrusted wax coatings and similar blemishes that have resisted the usual run of "general purpose" cleaners. Maintenance personnel can remove the most persistent types of dirt without resorting to harsh soaps or injurious chemicals. For additional information mail in the coupon.

3-WAY FLOOR CLEANER

AN INDUSTRIAL floor cleaner, which performs three operations in one, has been announced by the West Disinfecting Co., of New York. Pine Lustreclean, a liquid formulation, cleans, deodorizes, and lightly waxes all in one operation, leaving a fragrant, "woodsy" pine odor about the premises. It may be used on wood, composition tile, asphalt tile, mastic, linoleum, cork, terrazzo and painted or varnished floors as well as walls, woodwork and similar surfaces. Where a light, glossy finish is desired, only one cup of Pine Lustreclean to a gallon of water is needed. No rinsing is required, and usual cleaning methods, by mop or scrubbing machine, are sufficient. When dry, the solution provides a soft, satiny finish that can be further enhanced by light buffing. It is particularly suited to any type of establishment where floors are subject to excessively heavy traffic, or wherever

FLUORESCENT LAMP LOCK

THE Edison Electrical Co., of Rhode Island, presents the improved LOK-GYDE for fluorescent lamps to cut maintenance costs and prevent lamps from falling. This ingenious device performs two important functions: it channels the terminal pins into the sockets in relamping, making lamp replacement a one-hand job, and then locks the lamp in the sockets.

It reduces the time required for lamp replacement, minimizes the hazards of relamping, especially if done from a ladder, and guards against the danger of lamps falling when dislodged by vibration or other causes.

The attachment is quickly slipped over any standard 15 to 40 Watt fluorescent socket and becomes a permanent part of the fixture. Operation of lamp or fixture is not affected in any way. For details, send in the coupon.

INSIDE THE TRADE

New Quarters for Ansul District Offices

BECAUSE of increased business in the Detroit and Milwaukee areas, the fire extinguisher division of the Ansul Chemical Company, of Marinette, Wis., announces the transfer of its district offices in those cities to new and larger quarters. The new Detroit office will be located at 17184 Wyoming, Detroit 21, and the new Milwaukee quarters at 2755 N. Third St., Milwaukee 12.

With C. F. Hooper, as Detroit district manager, and R. F. Deerwester, as Milwaukee district manager, the new locations will enable Ansul to provide improved service, since there will be adequate parking space and warehouse facilities for immediate delivery of recharging supplies, parts, and most models of the company's line of dry chemical fire extinguishers.

New Benbow Company

REORGANIZATION of the Benbow Manufacturing Company, Burlingame, California, manufacturers of insulated trolley busways, has been completed, according to an announcement by Benbow president, Tirey L. Ford. A complete overhauling of both products and methods of distribution was begun in 1950, when new management was installed. Former sales outlets have been replaced with a coast-to-coast system of engineering organizations that handle both sales and service.

The company's original 100-ampere walking shoe safety trolley has been re-engineered. Recent additions to the line include a 50-ampere trolley of the same type, a sliding shoe trolley, and a new safety trolley for the insulation of figure eight bar conductor systems.

M.S.A. Adds to Line

TO SUPPLEMENT its equipment for protection of personnel and property in all industries, Mine Safety Appliances Company, Pittsburgh, now is handling a line of radiation detection instruments manufactured by Beckman Instruments, Inc., and the Arnold O. Beckman Co. Because of the increasing use of radiation in research and many industrial processes, including the atomic energy field, detection of radiation hazards is an integral part of safety and industrial hygiene programs.

Kidde to Expand

CONSTRUCTION of a new Engineering and Development Building to be completed within eight months has been announced by Walter Kidde & Company, Inc., Belleville, N. J.

The building will have a floor area of 18,000 square feet and will double the space presently occupied by Kidde's Engineering and Development Department. Facilities in the new building will include model shops, development and testing laboratories, and general engineering office space. Currently, in addition to its work in the fire detection and extinguishing equipment field, the company has undertaken a number of projects for the Armed Forces. It is anticipated that when the new facilities are completed, additional work of this nature can be accepted.

Fyr-Fyter Owner to Control Wooster Brass Co.

WILLIAM M. WETZEL, Chairman of the Board and President of The Fyr-Fyter Company, manufacturers of fire extinguishers, Dayton, Ohio, announced he had acquired in Herbert A. Post, Inc., New York City (a company owned outright by Mr. Wetzel) control of the outstanding capital stock of The Wooster Brass Company, manufacturers of fire fighting nozzles, hose couplings, and other brass fire fighting equipment, Wooster, Ohio. The Post company also owns The Fyr-Fyter Company. The Wooster Brass Company will henceforth operate as a division of The Fyr-Fyter Company.

Mr. Wetzel, owner of Buffalo Fire Appliance Corp., of Dayton, believes the acquisition will enable both The Fyr-Fyter Company and the Wooster Brass Division to render a more complete service in the fire protection field, resulting in increased sales of both extinguishers and brass goods. Fyr-Fyter has several branch and sales offices and about 2,000 distributors and dealers situated throughout the United States.

Wheeler Expands

WHEELER Protective Apparel, Inc., manufacturers of industrial safety clothing since 1911, have expanded to another floor in Chicago's Bauer Building, 224 West Huron Street, Chicago 10, where they have been located for the past twenty-five years.

Future plans include other office and factory improvements to enable that company to offer safety service to all their exclusive distributors located in key cities throughout the United States.

check list

OF PRODUCTS ADVERTISED IN THIS ISSUE

For full details, without obligation, merely circle the code number, fill in your name and address, and mail to: Service Dept., SAFETY MAINTENANCE & PRODUCTION, 75 Fulton St., New York 38, N. Y.

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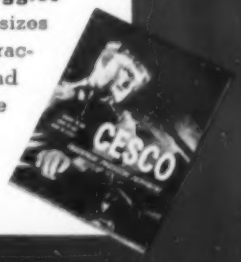

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